AN EXAMINATION OF CONSUMER RESPONSE TO CHANGE IN ONLINE RETAIL ENVIRONMENTS

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The main objective of this study was to determine the consequences of making changes to retail web-sites by examining how consumers respond to change within online retail environments. To achieve this aim, the study drew theoretical guidance from the general Stimulus-Organism-Response (SOR) paradigm. In particular, building upon web-site typology theories, the study proposed that two types of change influenced consumers' internal responses, prompting behavioural consequences. The two types of change were Task-Relevant and Non-Task-Relevant – representing the two broad components of the retail web-site. A conceptual model was developed outlining the expected effects of change on the emotional (Arousal, Pleasure and Dominance), psychological (Flow), and cognitive (Hedonic and Utilitarian Value) states predicted to precede re-acceptance of the changed retail web-site (Attitude toward Re-patronage and Re-patronage Intention).

To empirically examine this model, an online experiment (using a 2 x 2 between-subjects factorial design) was conducted, in which subjects were exposed to a modified version of a commercial personal banking web-site. A total of 292 responses were collected from Internet users in New Zealand. Simple linear regression, two- and three-stage hierarchical regression, and path analysis were used to analyse the dependence relationships outlined in the conceptual model. The results of the study suggest that both types of change have individual impacts on consumer response moreover, the effects are very different. In particular, Non-Task-Relevant Change appears to carry positive consequences, such as positive emotion, while the effects of Task-Relevant Change appear to carry negative consequences such as negative emotions and reduced value. Furthermore, findings suggest that offsetting the negative influences of change on emotion (particularly pleasure) can aid managers in minimising the negative consequences of change. The complete findings, their implications for the current research, and the provision of directions for future research are discussed in detail.

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1.1 INTRODUCTION – AN EMPIRICAL SETTING

The prevalence of retail activities within first world countries is undeniable; in the US, retail sales in 1998 were US$2.7 trillion (Forrester Research, 1998), while recent figures show that in 2009 retail sales had reached US$3.1 trillion (Forrester Research, 2011). Although the majority of these retail sales are amassed within physical stores (Forrester Research, 1998; 2009; 2010), retailers do use non-store retail channels to reach consumers.

Traditionally, non-store tools for retailers were limited to print media such as catalogues (Palmer, 1997). Prior to the prevalence of the Internet in homes, print catalogues were a key format for retailers (Hildebrand, 1994) as they provided anytime, anywhere options for shopping allowing 24-hour access to free-phone numbers for shopper comfort and convenience (Palmer, 1997). With the introduction of the Internet into the home, however, the presence of retail offerings on the web began to increase.

After fifteen years of developing commercial use, the Internet, has become an established channel within the consumer marketplace (Doherty & Ellis-Chadwick, 2010). Indeed, growth statistics for North American retailing demonstrate that the proportion of retail sales executed in online settings has been increasing since 2000 (U.S. Census Bureau, 2011) and that this growth is forecast to extend into the immediate future with annual online retail sales expected to reach US$248.7 billion by 2014 (Forrester Research, 2010).

Moreover, the Internet has proven itself a useful channel for consumers (Soopramanien & Robertson, 2007) by providing retailers with the ability to broaden target markets, deliver customised offers, enhance customer relationships, extend product lines, improve customer communications, and improve cost efficiency (Srinivasa, Anderson & Ponnavolu, 2002). Consequently, online retailing has developed to become a sustainable marketing channel in its own right (Doherty & Ellis-Chadwick, 2010).

Not surprisingly, early growth projections (e.g. Forrester Research, 1998) and subsequent actual growth performance has enticed numerous retailers to adopt a place on the web (Wrigley, Lowe & Currah, 2002). Amongst these online retailers, two primary online

retail formats are prevalent: the pure-play (exclusive online-only) retailer and the multichannel retailer. For the pure-play retailer, the web encompasses the entire retail offering. Such retailers could be service providers (e.g. www.fatso.co.nz) or facilitate product acquisition (e.g. www.amazon.com). For the multi-channel retailers, however, the web is utilised to augment physical retailing activities (e.g. www.kathmandu.co.nz), to extend current consumer bases (e.g. www.bookdepository.co.uk), or facilitate consumer self-service (e.g. Air Travel Booking; Personal Banking), while maintaining a physical presence.

While there are a number of notable failures in the online marketplace (e.g. Boo.com – Malmsten, Portanger & Drazin, 2002), there are also a number of success stories (e.g. eBay, Dell, TradeMe, and DealsDirect). Moreover, a number of exclusive online-only retailers have emerged and maintained an enduring online presence (e.g. Amazon, Kogan, and Mighty Ape). This research is interested in studying a phenomena specific to retailers with an active and enduring online presence – that is, *change*.

Given the relative newness of the Internet as a retailing channel, large scale change in electronic marketplaces appears to be a relatively new phenomenon. However, web-sites have been changing over the past 15 years in line with technological advances (e.g. SSL, interactive imagery), competitive pressures (e.g. increased competition) and social factors (e.g. live chat), albeit primarily through piecemeal approaches.

Nevertheless, at least three questions remain unanswered about the effects of retail web-site changes. What are the consumer consequences when retailers change their online retail web-sites? How do consumers respond to change? What are the specific mechanisms by which consumers respond to change?

While limited previous research has examined change in marketing (e.g. Nordstrom & Swan, 1976; Mazumdar & Jun, 1993), all such research is restricted to the offline setting. Moreover, while numerous authors have examined the effects of environmental influences on consumer behaviour within online settings (e.g. Ballantine, 2005; Eroglu, Machliet, & Davis, 2001; Kim, Kim, & Lennon, 2007; Lorenzo, Gomez & Molla, 2007; Managnari, Siomkos & Vrechopolous, 2009; Sautter, Hyman & Lokosius, 2004; Wang, Baker, Wagner, & Wakefield, 2007), no empirical research has yet investigated how consumers respond to change within a retail web-site.

Given the importance of the web-site in the marketing exchange for online retailing (e.g. Eroglu et al, 2001; Keeling, McGoldrick & Beatty, 2010), particularly its role as a source of cues for informing and encouraging behaviour (e.g. Demangoet & Broderick, 2007; Fiore & Jin, 2003; Roy, Dewit & Aubert, 2001; Wang *et al*., 2007), examining this deficiency in the literature appears appropriate. Consequently, it is believed a study into the effects of change in the online retail environment offers timely insight for both retail managers and marketing academics alike.

In the next section of this chapter, the conceptual background of the current research is presented followed by the specific research objectives undertaken within this study. Next, a brief summary of the methodological considerations are presented. Following this, a number of expected areas of contribution are highlighted, before the chapter concludes with an outline of the remainder of this thesis.

1.2 BACKGROUND TO THE STUDY

The aim of this research is to determine the consequences of making changes to retail web-sites by examining how consumers respond to change engendered within the retail web-site. In particular, how consumers respond to two types of change is investigated. Within this, the emotional, psychological, cognitive, and behavioural responses of consumers are examined to aid in the development of a model outlining the consequences of change, ultimately resulting in re-acceptance – the acceptance of the changed web-site as a replacement for the original.

Since the introduction of secure shopping capabilities 15 years ago, research on online retailing has matured steadily (Grewal & Levy, 2007), with research covering social issues (such as security, trust, and social presence – e.g. Cases, Fournier, Dubois & Tanner, 2010; Chau, Hu, Lee, & Au 2007; Grayson, Johnson & Chen, 2008; Keeling *et al*., 2010; Ling, Chai & Piew, 2010; McCole, Ramsey & Williams, 2010), functionality (such as navigation, web-site design – e.g. Novak & Hoffman, 2000; Richard & Chandra, 2005; Rosen & Purinton, 2004), richness of media (vividness, interactivity – e.g. Ballantine, 2005; Fortin & Dholakia, 2005; Fiore & Kim, 2005; Fiore, Kim & Lee, 2005; Haubl & Trifts, 2000), and design factors (such as layout, colours, use of imagery – e.g.

Daily, 2004; Eroglu *et al.*, 2001). No research to date, however, has examined change as a web-site phenomenon.

Although significant anecdotal evidence shows the presence of web-site refurbishment in current marketplaces, no empirical research has yet investigated how consumers respond to such change. Particularly, while several authors have explored the parts of the web-site and their effect on consumer behaviour (e.g. Eroglu, Machleit, & Barr, 2003; Hausman & Seikpe, 2009), no study has combined theoretical knowledge on the components of a web-site (i.e. web-site typologies) with theoretical perspectives on change to investigate the influence that type of change has on the response of consumers exposed to a changed retail web-site.

In light of this discussion, to achieve the aim of this research, this study investigates how consumers respond to two types of change available to marketers when engendering a change. In particular, the variables of interest in the current study are task-relevant change, which reflects modifications to web-site attributes that are directly related to task navigation and completion, and non-task-relevant change, which reflects modification to web-site attributes that are relatively inconsequential to task navigation and competition. These two types of change operationalise the two broad categories of change, but also represent the two broad components of the web-site identified from online retail research (e.g. Eroglu *et al.*, 2001) to be discussed in the following chapter.

In addition, the role of consumers' previous experience with the web-site is examined as an influence over response to change. Although no research has examined the effect of a-priori experience for a changing stimulus, prior research has demonstrated that previous experiences do play a role in the formation of response to new, yet related stimuli and scenarios (e.g. Ling *et al.*, 2010; Wang, Beatty, & Mothersbaugh, 2009). Moreover, an over-arching theme in many areas of the marketing discipline demonstrates the effect of interaction and experience with an object on consumers' formation of thoughts, feelings and attitudes towards that object. For example, value research demonstrates that value is derived from interactions with stimuli (Babin, Darden, & Griffin, 1994; Borges, Chebat & Babin, 2010; Mathwick, Maholtra, & Rigdon, 2001). Moreover, attitude formation research demonstrates that attitudes form following experience with objects (Dröge, 1989; Wang *et al*., 2009; Yoo & MacInnis, 2005). Consequently, alongside task-relevant change and non-task-relevant change, a-priori experience is examined as a key variable

in this study to help aid in developing an understanding of the consequences of making changes to online retail environments.

1.3 RESEARCH QUESTIONS AND OBJECTIVES

Based on the foregoing discussion, this research is driven by four research questions – one overarching and three specific. From these questions, three distinct research objectives are formulated:

1.3.1 Research Questions

What are the consumer-related consequences of retailer imposed change within commercial retail web-sites?

How do consumers respond to change in a retail web-site?

Does the type of change influence how consumers respond to the changed web-site?

What role does previous experience with the existing web-site play in how consumers respond to the changed web-site?

1.3.2 Objectives

Objective One:

To develop a model of consumer response to change applicable to online settings within the field of retailing.

Objective Two:

To determine if type of change influences consumers' responses to the changed web-site.

Objective Three:

To determine the role of previous experience with the existing web-site in consumers' responses to the changed web-site.

1.4 RESEARCH METHODOLOGY

In order to satisfy the objectives discussed in Section 1.3.2, a deductive approach is undertaken in the research. A deductive approach is appropriate for this research because the fields from which this thesis draws conceptual foundations and theoretical arguments are comprised of broad collections of established yet evolving knowledge, shared understanding, and popular convention.

As part of this deductive approach, the primary research design follows a quantitative research methodology. Particularly, as there is a desire to examine the effect of change on response, control over the change engendered by retail web-sites is vital. Due to this need for control, an experimental approach is most appropriate. Furthermore, as the research is geared toward initial consumer responses to change, the focus of data collection is on cross-sectional data. Therefore, a full-factorial experimental design is adopted, whereby responses are collected from participants who have been exposed to a modified retail web-site through experimental manipulations and an online survey tool.

1.5 RESEARCH CONTRIBUTIONS

This research is expected to yield both theoretical and practical implications. Specifically, this research is expected to contribute to theory development in three key fields of the marketing discipline – change, environmental psychology, and emotion. Furthermore, this research is expected to provide retail managers with valuable insights for understanding and managing changes in their commercial web-sites.

1.5.1 Theoretical Implications

Change in Marketing

This research contributes to the limited field of change in marketing. Specifically, the research contributes a quantitative study in which change to a marketing stimulus is at the forefront of the research. Moreover, as change in marketing stimuli appears a common but under-examined component of the marketing discipline, this study presents the first comprehensive model of consumer response to change within the marketing literature. More specifically, given the online retailing context, the study is expected to offer a timely contribution to the retailing academy with a focus on online settings. In particular,

this study offers timely insight into the consequences of changing online retail environments - a prolific marketplace phenomenon.

Environmental Psychology in Marketing

This research also contributes to the growing field of environmental psychology in marketing, in particular online environmental psychology. This study compliments existing research on the conceptualisation of web-site environments by contributing a model of web-site change based on fundamental theory from environmental psychology. In doing so, this research supports the move from viewing the commercial retail web-site as digital media to viewing the commercial retail web-site as a vibrant virtual environment.

In addition, this research examines change in two macro-level dimensions (task-relevant and non-task-relevant) of the online retail environment. Specifically, change is examined as the valance of difference between one environment at different times. As most other Stimulus-Organism-Response (SOR) models in the retailing literature examine the presence or non-presence of single web-site attributes (such as interactive imagery or social cues), this study extends the use and application of environmental psychology theory within online environments, and marketing environments in general.

Emotion in Marketing

This research contributes new dimensions to the field of emotion, in particular the growing area of emotion in online consumer behaviour. Specifically, this study models change through an affect-primed paradigm in a cognition-dominant environment (see Demangeot & Broderick, 2010). As such, it offers a unique and timely contribution to the research on emotion in online consumer behaviour by generating an emotion-primed model of change which is suitably positioned to re-integrate dominance into the SOR framework as a vital emotional response variable alongside pleasure and arousal.

Additionally, this study offers a unique contribution to emotion in online consumer behaviour research by suggesting an original conceptualisation of the relationship between the emotional dimensions and the flow construct. Specifically, the study purports that the emotional dimensions are antecedents of the degree of flow felt; thus extending the consequences of deriving positive emotions while shopping online.

1.5.2 Practical Implications

Managerial Insights

This research is expected to provide retail managers with quantifiable insights into the consumer-based consequences of online retail environment change. These insights are expected to be useful and timely for retail mangers looking to change their online retail environments and develop change strategies. Specifically, this research is expected to offer insights into the response process consumers follow and provide managers with the key stages in the process consumers follow as a response to change, as well as the importance of each component in reaching positive response outcomes.

1.6 THESIS OUTLINE

This thesis is organised into six chapters. An overview of each chapter appears below along with a presentation of the overall outline in Figure 1.1

Chapter One provided an overview of this study by presenting the background to the research, the research objectives, an introduction to the methodology adopted, and the theoretical contributions and practical implications of the study.

Chapter Two discusses the main literature relevant to the fields of research for this study. It focuses on literature pertinent to developing an understanding about online retailing, retail web-site, change, and environmental psychology.

Chapter Three is devoted to the development of the conceptual model for empirical testing. Within the chapter, an overview of the predicted model is presented, followed by the presentation of a concise explanation for each dependence relationship, alongside the proposed formal hypotheses.

Chapter Four discusses the methodological aspects of this study. It focuses on the development of the online experiment and questionnaire, the selection of the sample, and the procedures used to collect the data.

Chapter Five is focused on the statistical analyses of the data collected.

Chapter Six discusses the major findings of this research resulting from the analysis in Chapter Five. Additionally, the practical implications of this research and some directions for future research is presented.

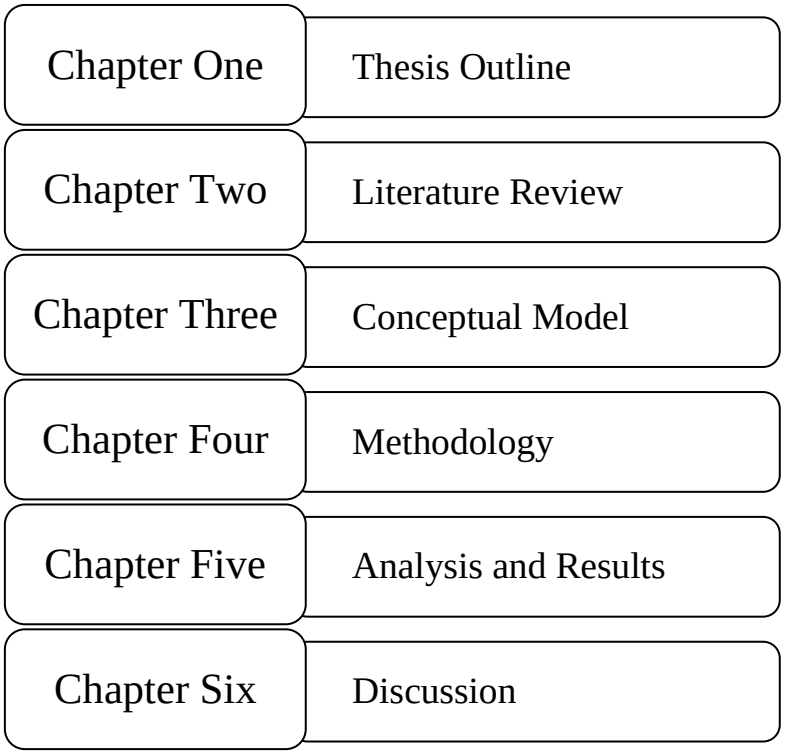

Figure 1-1 – Overview of Thesis

2 LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this chapter is to provide a review of the literature related to the main areas of interest within this study. In doing so, this chapter begins by providing an overview of online retailing including a review of the literature exploring consumer behaviour in online retail settings. Following this, the retail web-site and the importance of the web-site within online retailing is examined in detail. Next, an overview of change is presented, including the introduction of the two variables of interest in this study, before change within commercial retail web-sites is discussed. In the final two review sections of this chapter, the literature relating to consumer response is explored; specifically, the theoretical foundations for response are examined before the application of the theory to a change framework is discussed. Building on the information presented in this chapter, the conceptual model to be examined in this thesis is introduced in Chapter Three.

2.2 AN OVERVIEW OF ONLINE RETAILING

2.2.1 Introduction to Online Retailing

The presence of online channel options in most mainstream retail categories is a relatively new phenomenon; the ability to shop online has only existed for a decade but over that time authors in the field of online retailing have continued to report and project considerable growth in online sales figures (Belch, Krentler & Willis-Flurry, 2005; Chema & Papatla, 2010; Forsythe & Shi, 2003; Garbarino & Strahilevitz, 2004; Papatla & Liu, 2009; Punj & Moore, 2009; Rohm & Swaminathan, 2004). Supporting census figures from the United States show that online retailing sales as a proportion of total retail sales has steadily increased from 1.4% in 2002, to 4.6% in 2011 (Census Bureau, 2011). Forecasts for future performance of e-commerce provide support for the growth of online retailing. Specifically, while the rate of growth for online sales in the US is expected to decline from 13% in 2010 to 8% in 2013 (Forrester Research, 2009), online sales in the US are still forecast to reach $229.1 billion by 2013, with computer hardware ($36.0 billion), electronics ($30.3 billion) and apparel ($40.3 billion) accounting for almost half of that figure at $106.6 billion.

According to Hausman and Siekpe (2009), much of this growth is due to the advantages online retailing offers, such as convenience, value and hedonic consumption possibilities (Eroglu *et al.,* 2001). Although critics of the online channel suggested online retailing would create a threat to the retail industry from innovative retailers (e.g. see Christensen & Tedlow, 2000), given the opportunities the online setting offers retailers, such as increased access to customers (Bernstein, Song & Zheng, 2008) and low relative operating costs (Tang & Xing, 2001), not surprisingly, in recent years the Internet has become a new channel for many products and services (Papatla & Liu, 2009). As online shopping becomes increasingly integrated into everyday consumption, retailers and consumers alike are expected to look to the web to simultaneously satisfy business and shopping goals.

2.2.2 Online Retailing and Consumer Behaviour

Within the online retailing literature, researchers have explored a myriad of topics. For example, researchers have compared differences between online and traditional brick and mortar settings on dimensions such as loyalty (Danaher, Wilson & Davis, 2003) and low price signals (Dutta & Bhowmick, 2009). Other studies have explored the area of demographics, such as culture (e.g. Davis, Wang & Lindrige, 2008; Mazaheri, Richard & Laroche, 2011) and gender (e.g. Garbarino & Strahilevitz, 2004; Richard, Chebat, Yang & Putrevu, 2010). Researchers have also examined the consumer-retail relationship, focusing on dimensions such as loyalty (e.g. Balabanis, Reynolds & Simitiras, 2006; Park, Chung & Rutherford, 2009), congruity (e.g. Gounaris, Koritos & Vassilikopoulou, 2009) and trust (e.g. Keeling, McGoldrick & Beatty, 2009), while investigations into the consumer's online experience have also been conducted (e.g. Hernandez, Jimenez & Martin, 2009; Mathwick & Rigdon, 2004; Novak *et al.*, 2000). Notably, within the field of consumer experience is the concept of online flow, a unique consideration for online consumer behaviour researchers.

2.2.2.1 Flow

Flow is a psychological state that individuals reach during engagement in activities (Novak *et al.*, 2000; Wang *et al.*, 2007) and has been referred to as the optimal experience (Csikszentmihalyi, 1977). Originally, brought to the academic realm by Csikszentmihalyi (1975), the flow construct has been studied for over thirty years (e.g. Csikszentmihalyi 1975; 1989; 1991, 1997; Hoffman & Novak 1996; Novak, Hoffman &

Duhacheck, 2003; Trevino & Webster, 1992) across numerous context such as sports, work, games, hobbies and shopping (Novak *et al.*, 2003). The term *online flow* was coined by Hoffman & Novak (1996) in their exploration of the flow experience in relation to the navigation of the web. In their study, Hoffman and Novak (1996) define online flow as "the state occurring during network navigation, which is (1) characterised by a seamless sequence of responses facilitated by machine interactivity, (2) intrinsically enjoyable, (3) accompanied by a loss of self-consciousness, and (4) self-reinforcing" (p.57). Moreover, online flow, as with its offline counterpart, was conceptualised to occur when skills and challenges are in equilibrium while navigating the web-site (Novak and Hoffman, 1996). However, Chen, Wigan and Nilan (1999) criticised this conceptualisation of Flow arguing that it didn't operationalise flow with respect to specific activities and the multi-activity nature of the web made the concpetualisation, and subsequent responses unreliable. Consequently, although the presence of online flow is prolific amongst online retail research, various conceptualisations and applications of flow are also prolific (Choi, Kim & Kim, 2007; Hoffman & Novak, 2009); for example, flow, is sometimes considered a reflection of the optimal experience (e.g. Hsu & Liu, 2003; Luna, Perrachio & de Juan, 2002), while under other applications, flow is the culmination of various psychological proxies for engagement, such as attention, interest or curiosity (e.g. Wang *et al.*, 2007). Nevertheless, within the literature, consumers who enter a state of flow have been found to enjoy the online experience more (Hoffman & Novak, 1996; Wang *et al.*, 2007), spend more time on the web-site (Hoffman & Novak, 1996), and have stronger intentions to return (Williams & Dargel, 2004). Consequently, flow is rewarding for both retailers and consumers. Modern views of flow suggest that for a web-site to facilitate flow it must promote interactivity and engagement (Novak *et al.*, 2000; Wang *et al.*, 2007), provide sources of information (Williams & Dargel, 2004), a sense of adventure (Hoffman & Novak, 1996; Williams & Dargel, 2004), and a purposeful drive (Novak *et al.*, 2000; Williams & Dargel, 2004).

A summary of select literature from online retailing and consumer behaviour is presented in Table 2-1.

Table 2-1 - Summary of Online Retail Consumer Behaviour Studies

Author	Purpose of Study	Findings / Conceptual Contribution
	Conceptual Literature	
Ding, Hu and Sheng (2010)	Proposed a conceptual framework to examine the quality of online self-services in online retailing, which guided the development of a scale termed e-SELFQUAL.	The resulting scale, e-SELFQUAL, provides a reliable means for examining the relationships between online service quality and customer satisfaction, as well as loyalty in online retailing.
Eroglu, Machliet, and Davis (2001)	Proposed a conceptual model to examines the potential influence of atmospheric qualities of a virtual store.	A Stimulus–Organism–Response (SOR) framework is used as the basis of the model which posits that atmospheric cues of the online store, through the intervening effects of affective and cognitive states, influence the outcomes of online retail shopping in terms of approach/avoidance behaviours. Two individual traits, involvement and atmospheric responsiveness, are hypothesized to moderate the relationship between atmospheric cues and shoppers' affective and cognitive reactions.
Mollen and Wilson (2010)	Proposed a conceptual framework that merges the practitioners' view of the consumer experience while online with the scholarly view of the consumer experience while online.	This study characterised the consumer experiential response to online environmental stimuli as a dynamic arrangement which includes interactivity, telepresence and engagement. Engagement is construed as a function of both cognitive and affective commitment to an active relationship with the brand, and dimensions of the engagement construct are subsequently proposed. Moreover, the constructs of interactivity, flow and involvement are discussed to show how they are related to, but distinct from, the constructs within the conceptual framework.

Author	Purpose of Study	Findings / Conceptual Contribution
Mummalaneni (2005)	Explored the effects of web-site characteristics on consumer emotional states and behaviour.	Proposed that the stimulus–organism–response (SOR) framework of Mehrabian and Russell as a viable model for the investigation of consumer responses for the web-sites of virtual stores.
	Empirical Literature	
Akinci, Atligan-Inan and Aksoy (2010)	Focused on measuring electronic service quality and service recovery issues by means of E-S-QUAL and E-RecS-QUAL (service recovery quality) scales in a pure service oriented setting and across a culturally different consumer group than for the original scale.	Found that, for an internet banking context, a refined and more stable version of the E-S-QUAL scale was most appropriate. Comprehensive psychometric tests also suggested that E-RecS-QUAL is an appropriate tool to evaluate online service recovery in consumer research.
Alsajjan and Dennis (2009)	Proposed a revised technology acceptance model to measure consumers' acceptance of Internet banking.	Results supported the revised technology acceptance model and suggested that attitude and behavioural intentions could be applied as a single factor, denoted as "attitudinal intentions" (AI).
Balabanis, Reynolds and Simintiras (2006)	Examined two antecedents of e-store loyalty (perceived switching barriers and satisfaction) and the way in which they interact and effect consumer outcomes.	Found that if customers do not consider themselves loyal to the e-store they frequently despite being satisfied, that the impact of switching barriers varies at different levels of customer satisfaction, and that what customers consider to be a switching barrier differs at different levels of customer satisfaction.
Bart, Shankar, Sultan and Urban (2005)	Developed and tested a conceptual model that links web-site and consumer characteristics, online trust, and behavioural intention.	The results showed that the influences of the predictors of online trust are different across site categories and consumers. In particular, privacy and order fulfilment are the most influential determinants of trust for sites in which both information risk and involvement are high, while navigation is the strongest predictor for information-intensive sites, and brand strength is critical for high-involvement categories.

Author	Purpose of Study	Findings / Conceptual Contribution
Bauer, Falk and Hammerschmidt (2006)	Developed a transaction process-based scale for measuring service quality (eTransQual), which includes both hedonic and utilitarian e-service quality elements.	Five discriminate quality dimensions were identified for eTransQual and all five demonstrated a significant positive impact on important outcome variables like perceived value and customer satisfaction.
Bhatnagar and Ghose (2004)	Empirically investigated termination patterns for online information search, relating the differences to product categories and consumer characteristics.	Findings from this research provided insight on the termination patterns of search for various product categories and demographics. For example the authors note that apparel has the longest search time, while older consumers spend more time searching for information than young people.
Bosnjak, Galesic and Tuten (2007)	Attempted to understand online purchase intent be exploring personality constructs.	Found that personality characteristics of different levels of generality (Elemental, Compound, Situational and Surface) affect decisions about future online purchases. Three of the Big Five factors (Neuroticism, Openness to Experiences, and Agreeableness) had small, but significant influences on the willingness to buy online. In addition, Need for Cognition has a direct negative effect and only Affective Involvement (not Cognitive Involvement) is a significant determinant of intention to purchase online. The authors conclude that the decision to shop online is made with emotion rather than reasoning.
Brengman, Geuens, Weitjters, Smith and Swinyard (2005)	Attempted to cross-culturally validate the Internet shopper lifestyle scale.	Through a survey administered in the United States and Belgium, the same six basic dimensions were found to underlie the Internet shopper lifestyle scale for both countries: Internet convenience, perceived self-inefficacy, Internet logistics, Internet distrust, Internet offer, and Internet window-shopping. Moreover, four common online shopping segments (tentative shoppers, suspicious learners, shopping lovers, and business users) and four common online non-shopping segments (fearful browsers, positive technology muddlers, negative technology muddlers, and adventurous browsers) were identified.

Author	Purpose of Study	Findings / Conceptual Contribution
Bridges and Florsheim (2008)	Explored the elements of Flow as they relate to pathological Internet use and online purchasing.	Findings suggested that the utilitarian Flow elements that facilitate shopping may indeed increase purchasing. However, the hedonic elements of Flow are found to be unrelated to online buying, although they are positively related to outcomes associated with pathological Internet use.
Buttner, Schulz and Silberer (2006)	Examined the role of perceived risk and deliberation in consumer choice of online pharmacies.	Findings showed that risk is a factor in the selection of an online retailer across dimensions of both product category and retailer category. In particular, results suggested that retail category risk increases perceptions of the likelihood of potential negative outcomes, while product category risk increases perceptions of the magnitude of potential negative outcomes.
Caruana, (2009)	Examined the role of corporate reputation and its relation to quality, perceived value, and loyalty in an online context.	Findings from the two samples suggested that corporate reputation has a direct effect on online loyalty and provides an important mediating effect for perceived value and aspects of quality on online loyalty
Cheema and Papatla (2009)	Examined the relative importance of online versus offline information in Internet purchases across three purchasing situations.	Findings revealed that the relative importance of online information is higher for utilitarian products (computer hardware and software) than for hedonic products (books, music, and movies) and that the relative importance of online information decreases with increasing consumer Internet experience.
Childers and Kaufman-Scarborough (2009)	Examined the shopping habits of persons with disabilities by considering the frequency of online shopping, the amount spent, and reasons for shopping online among both disabled and non-disabled persons. Additionally, persons with disabilities were grouped into six major categories according to disability type.	Results revealed both differences and similarities between persons with and without disabilities. For example, individuals with disabilities are less likely to have purchased goods or services through the Internet that non-disabled people while persons with a visual impairment purchase online to the same degree as those without a disability. The six categories of persons with disabilities were: Visually impaired, and Reading, Hearing, Physical, Manual, or Speech disabled.

Author	Purpose of Study	Findings / Conceptual Contribution
Close and Kular-Kinney (2010)	Investigated consumers' motivations for placing items in an online shopping cart with or without buying.	This study revealed that both utilitarian and hedonic motivations explain the frequency of online cart use. In particular, irrespective of purchase intentions, consumers were noted to use shopping carts to secure online price promotions, obtain more information on certain products, organize shopping items, and for entertainment.
Danaher, Wilson and Davis (2003)	Compared consumer brand loyalty in online and traditional shopping environments.	This study found that in online settings, brand loyalty is significantly greater than predicted for high market share brands and significantly less for small market share brands; However, the difference between observed and predicted brand loyalty is, in contrast, not related to brand share in traditional shopping settings.
Davis, Wang and Lindridge (2008)	Assessed how emotional and behavioural responses to web-site atmospherics differ across collectivist and individualist cultural value systems (American and Chinese).	Cultural values were found to affect customers' responses to atmospheric cues. In particular, for American consumers the presence of low task relevant cues affected the level of pleasure felt while shopping positively. However, in the Chinese sample, the effect of low task cues' on pleasure was mediated by arousal. In both cultures, pleasure was predictive of customers' approach behaviour.
Dutta and Bhowmick (2009)	Compared consumer evaluation of low price signals as a function of depth of information processing in offline and online settings.	Results indicate that at low levels of information elaboration (information processing) regardless of retail setting consumers accept a low price signal as an indicator of low price; However, at high levels of elaboration, consumers challenge the assumptions underlying their acceptance of the signal and are more sceptical of an online signal than an offline signal.
Eastlick, Lotz and Warrington (2006)	Investigated whether a traditional business-to-business relationship marketing framework could be applied to the information-intensive online business-to-consumer channel.	Generally results supported the application of the framework to an online B2C channel; specifically, the strongest relationships leading to online purchase intent were those between trust in and commitment toward an online retailer and between firm reputation and trust. Moreover, privacy concerns influenced purchase intent with strong negative effects.

Author	Purpose of Study	Findings / Conceptual Contribution
Evanscitzky, Iyer, Hesse and Ahlert (2004)	Replicates an original examination of e-satisfaction (see Szymanski and Hise, 2000) by exploring consumer satisfaction with Internet retail shopping and consumer satisfaction with Internet financial services sites amongst German consumers.	Results of this study found that the model of e-satisfaction, and its drivers, fits moderately well to consumer perceptions in two German online contexts—Internet shopping and Internet Finance.
Forsythe and Shi (2003) *Conceptual*	Explored the effects of perceived risks associated with Internet shopping and the relationships between types of risk and online patronage behaviours.	Findings suggested that perceived risk is a useful construct to explain barriers to online shopping. Moreover a conceptual model for examining Internet patronage behaviour from a perceived risk framework is proposed.
Garbarino and Maxwell (2009)	Explored the role of norms in predicting consumer responses to differential pricing.	Findings supported the importance of norms in predicting responses: Specifically, belief in a norm acts as a strong predictor of negative responses when the pricing norm is broken (i.e., fairness, trust, purchase, search and complaint intentions). Moreover, priming people to consider norms generally increases such negative responses. Additional findings demonstrate that prior trust in the firm acts as a diminishing buffer against the negative response to norm breaking.
Garbarino and Strahilevitz (2004)	Examined gender difference in perceptions of web-site risk and the effect of receiving a web-site recommendation from a friend.	Results suggested that women perceive a higher level of risk in online purchasing than do men, irrespective of differences in Internet usage. Moreover, women exhibit a greater reduction in perceived risk and a stronger increase in willingness to buy online following site recommended than do men.
Gounaris, Koritos and Vassilikopoulou (2009)	Proposed and validated a model of online shopping that incorporates the interaction effects of consumer's shopping orientation (utilitarian/recreational) and attitudes towards the atmospheric qualities of the online store on the buyer decision making process.	Results revealed the presence of significant interaction effects during the information search stage but not during the purchase stage. Additionally, while such interaction effects were significant for utilitarian shoppers, no such effects were identified for recreational shoppers.

Author	Purpose of Study	Findings / Conceptual Contribution
Griffith (2005)	Theorised how two types of online store layout (tree and tunnel web-site structures) would influence consumer elaboration and response by using information processing theory and components of the technology acceptance model (TAM).	Results indicated that consumers exposed to a tree structured online store layout perceived the store to be easier to use, experienced greater elaboration of product related information, had higher levels of product and brand recall, greater purchase intentions and a more positive attitude toward the retailer than those exposed to a tunnel structure online store layout
Ha and Stoel (2009)	Attempted to integrate e-shopping quality, enjoyment, and trust into a technology acceptance model (TAM) to understand consumer acceptance of e-shopping.	This study found that e-shopping quality determines perceptions of usefulness, trust, and enjoyment, which in turn influence consumers' attitude toward e-shopping. In turn, consumer perceptions of usefulness and attitude toward e-shopping influence intention to shop online, while perceived ease of use does not influence attitude toward e-shopping. Finally, both shopping enjoyment and trust play significant roles in consumers' adoption of e-shopping.
Hausman and Siekpe (2009)	Tested a range of design elements to identify those that provide 'human elements' and those that provide 'computer elements'. Next, these elements were linked through intermediaries using the uses and gratifications theory, technology acceptance model, and the concept of flow to explain purchase intentions and intentions to revisit the site.	Results suggested that the effects of computer and human factors on perceptions of usefulness, informativeness, entertainment, and perceived irritation related to the site were different, with the computer factors having a more influential impact on the consequent intention variables than human factors.
Hernandez, Jimenez and Martin (2009)	Examined the perceptions which induce customers to purchase over the Internet, testing the moderating effect of previous e-purchasing experience.	The findings demonstrated that previous experience acquired from past online purchases influences customer behaviour because the previous experience acquired forces perceptions in online settings to evolve. Moreover, the perceptions of e-commerce in general also change with purchasing experience.
Hill and Beatty (2011)	Investigated adolescent shopping and self-efficacy development in the online setting.	Findings supported that the adolescent shopper's involvement with the online environment and their activities whilst online influence consumer socialization which fosters self-efficacy.

Author	Purpose of Study	Findings / Conceptual Contribution
Hsieh, Chiu and Chiang (2005)	Investigated the effects of relational bonds on customer commitment on the Internet across search, experience, and credence goods and services.	The results suggested that financial, social, and structural bonds all have positive impacts on customer commitment. In addition, for product types, financial bonds are more successful in strengthening customer commitment for search goods/services than for experience or credence goods/services, while structural bonds are more important for credence and experience goods/services than for search goods, and social bonds are almost equally important for all three types of goods/service.
Keeling, McGoldrick and Beatty (2009)	Examined whether avatars contribute to user trust and patronage intentions, factoring in a social- or task-oriented communication styles.	Results indicated that avatar use within task-oriented communications contribute to trust, which in turn contributes to patronage intentions, especially for search goods/services. Within social-oriented communications, avatar use also contributes directly to trust and to patronage intentions, with the strongest effects noted for credence goods/services.
Kim and Forsythe (2008)	Examined the functional and hedonic roles of Virtual Try-on technology by applying a modified e-TAM model to the technology adoption process across both male and female shoppers.	The results of the study found that technology anxiety and innovativeness had significant moderating effects on the relationship between attitude to use and use of Virtual Try-on technology; however, there was no significant gender difference in the overall adoption process for Virtual Try-on.
Kular-Kinney, Ridgway and Monroe (2009)	Examined how consumers' preferences to shop and buy on the Internet rather than at bricks-and-mortar stores differ depending on their compulsive buying tendencies.	The results of this study found a positive relationship between a tendency to buy compulsively and Internet shopping/buying motivations. Moreover, the research demonstrates that the items used to measure these motivations can also be used to identify buyers who have a tendency to buy compulsively.
Kwon (2009)	Investigated the interplay between a multi-channel retailer's off-line and online brand images and the effect of this interplay on consumers' online perceived risk and online loyalty.	The results revealed that a store's offline brand image exerts significant effects on the brand image for the online store. In turn online brand image significantly explains online perceived risk and online customer loyalty. However, after controlling for the effects of online and offline brand images, online perceived risk has no significant effect on online customer loyalty.

Author	Purpose of Study	Findings / Conceptual Contribution
Laroche, Yang, McDougall and Bergeron (2005)	Explored the effects of three unique intangibility dimensions on a consumer's ability to evaluate goods and services, and the perceived risk (PR) associated with the transaction.	Intangibility was shown to be multi-dimensional with each dimension influencing evaluation and risk differently in online environments. In addition the effects of the intangibility differed between online and offline environments.
Lee and Tan (2003)	Developed an economic model of consumer choice in which a consumer selects between online and in-store shopping focusing on the retail context utility and the consumers' perceived product and service risks.	Results of this study supported the conceptual model whereby consumers were expected to derive utility from the shopping experience, were more likely to shop on-line for products/services that are low in purchase risks, and were likely to shop online for products with well-known brands than lesser-known ones. However, they were less likely to shop online from lesser-known retailers who carry well-known brands than from reputable retailers, regardless of the brand reputation of the products carried.
Madhavram and Laverie (2004)	Explored the concept of impulse purchasing behaviour online.	The findings suggested that impulse purchases occur in online retail settings and stimuli other than the product can cause the eventual impulse purchase.
Mathwick, Malhotra and Rigdon (2002)	Introduced the cognitive continuum theory (CCT) as a theoretical framework to examine the effect of consumer shopping tasks and retail information display on consumer perceptions of experiential value.	This study found that the nature of a consumer's shopping task influences the perceptions of efficiency, economic value, and shopping enjoyment. In addition, congruent interactions between shopping task and retail information display enhance the reactive dimensions of value – visual appeal, entertainment value, and service excellence.
Mathwick and Rigdon (2004)	Examined the conditions necessary to transform online information search into "play".	The results of this study suggested that the online information search experience creates a source of value that is positively associated with web and brand attitudes; however, the perception of play is highly sensitive to the maintained balance between navigational challenge and Internet search skills, which is influenced heavily by product involvement.

Author	Purpose of Study	Findings / Conceptual Contribution
Mazaheri, Richard and Laroche (2011)	Compared Hofstede's (1991) cultural value dimensions between Canadian and Chinese customers using a stimulus-organism-response model.	Findings identified a number of non-invariant paths between the two groups while generally supporting Hofstede's cultural value dimensions. In particular, the influence of pleasure (dominance) on behavioural variables was higher for Canadian (Chinese) compared to Chinese (Canadian) customers. In addition, low (high) task relevant cues were more impactful for Chinese (Canadian) customers than for their Canadian (Chinese) counterparts.
McCole, Ramsey and Williams (2009)	Examined the relationships between three common trust sources (vendor, Internet and third parties) and attitudes toward online purchasing.	The study found that trust in a vendor, trust in the Internet and trust in third parties each positively influence attitude toward online purchasing.
Menon and Kahn (2002)	Examined the flow-on effects of stimulation and pleasantness for shoppers across multiple web-sites.	The findings of the study suggested that if the initial experiences encountered in a simulated Internet shopping trip are higher in pleasure, then greater subsequent approach behaviours are likely as subjects engage in more arousing activities (e.g., more exploration, more tendencies to examine novel products and stores, higher response to promotional incentives). Further, if higher stimulation or information load is provided by the initial experience consumers tend to subsequently engage in less arousing activities.
Moon, Chadee and Tikoo (2008)	Investigated consumer purchase intentions toward personalised products in an online setting factoring in situational and cultural characteristics.	Results indicated that individualism is the only culture dimension to have a significant effect on purchase intention. Product type also has a significant effect, whereas price does not.
Novak, Hoffman and Yung (2000)	Empirically tested a model of online Flow through a structural modelling approach and tested the direct and indirect effects of Flow on key consumer behaviours.	The research found general support for the Hoffman and Novak (1996) Flow model. Furthermore, Flow was found to influence exploratory behaviour and positive affect.

Author	Purpose of Study	Findings / Conceptual Contribution
Overby and Lee (2006)	Examined the relevancy of Utilitarian value and Hedonic value for online shopping and the relationship between the two value dimensions, preference towards the Internet retailer, and behavioural intentions.	Findings from the study indicated that although both value dimensions were relevant for online shopping, utilitarian value has a stronger relationship with preference towards the Internet retailer and intentions than hedonic value and that shopping frequency can play a moderating role on the relationship.
Papatla and Liu (2009)	Investigated whether search engines or infomediaries play a stronger role in encouraging unplanned visits to web-sites.	Results indicated that retailer and consumer factors, category characteristics, and the consumer's past relationship with the retailer play a role in the store choice decisions for online consumers; however, when focusing on search engines and infomediaries specifically, search engines appear to have a much stronger role than infomediaries.
Park, Yoon and Lee (2009)	Attempted to examine the effects of gender on information search behaviour within the online setting for varying product types.	Results indicated that females tend to search for various information including both product and customer reviews and use an assistant agent more than males in the online shopping process. Consequently, females are more likely to be comprehensive processors than males in the online environment. In terms of the effect of product type, males showed no significant differences in information search depending on product categories, however, females read customer reviews and used an assistant agent more when shopping for experience goods than when shopping for search goods.
Poddar, Donthu and Wei (2009)	Investigated whether a brand/store personality approach applies to a web-site context.	Findings suggested that web site personality has an effect on perceptions of web-site quality and perceptions of web-site quality mediate the effect of web-site personality on purchase intention.
Punj and Moore (2009)	Attempted to understand information search and consideration set formation in a web-based choice environment.	The results of this study offered key insights on the dynamics of task environment, information search and consideration set development. For example, as the number of alternative increase, the size of the consideration set increases, similarly, as available time increase, number of search iterations and number of alternatives examined both increase.

Author	Purpose of Study	Findings / Conceptual Contribution
Richard and Chandra (2005)	Investigated the factors that can affect customers' navigation, web-site attitude and pre-purchase intentions.	Findings showed that numerous factors influence navigation, attitude toward web-sites and pre-purchase intentions. For example, challenge was found to have a positive effect on both exploratory behaviour and pre-purchase intention.
Richard, Chebat, Yang and Putrevu (2010)	Examined the influence of Internet experience, web atmospherics and gender on online consumer behaviour.	While some specific hypothesised relationships were not confirmed, overall results of the study demonstrated significant effects for Internet experience, web atmospherics and gender in shaping online consumer behaviour.
Rohm and Swaminathan (2004)	Developed a motivation-based typology of online shoppers.	Based on the analysis of various shopping motivations, four shopping types were identified. These four types are labelled convenience shoppers, variety seekers, balanced buyers, and store-oriented shoppers.
Senecal, Kalczynski and Nantel (2005)	Investigated the effect of online decision-making processes on the complexity of online shopping behaviour in purchase situations.	Results of the analysis showed significant differences between subjects' decision-making processes and their online shopping behaviour. Specifically, subjects who did not consult a product recommendation had significantly less complex online shopping behaviour (e.g. fewer web pages viewed) than subjects who consulted the product recommendation. With respect to follow-through, no differences were found between the online shopping behaviour of subjects who consulted but did not follow the product recommendation and subjects who consulted and followed the product recommendation.
Senecal and Nantel (2004)	Investigated the usage of online recommendation sources and their influence on online product choices across product types.	Results strongly support the contention that product choice is influenced by online recommendations; however, not all online recommendation sources are equal in their influence. Moreover, the influence of product recommendations varies with product type.

Author	Purpose of Study	Findings / Conceptual Contribution
Shim, Eastlick, Lotz and Warrington (2001)	Examined whether intent to search the Internet for product information is a key element in predicting consumers' Internet purchasing intentions.	Results show that intention to use the Internet to search for information was not only a strong predictor of Internet purchase intention but also a mediator in the relationships between keep other influencing variables (i.e., attitude toward Internet shopping, perceived behavioural control, and previous Internet purchase experience).
Spann and Tellis (2006)	Examined, in relation to an economic model, the extent to which decisions made in 'name your price' auctions are rational.	The results show that a large number of consumers do not exhibit rational decision making when engaging in 'name your price' auctions. These findings were consistent across two differing markets.
Srinivasan, Anderson and Ponnavolu (2002)	Investigated the antecedents and consequences of customer loyalty in an online business-to-consumer (B2C) context.	Eight factors (the 8Cs – customization, contact interactivity, care, community, convenience, cultivation, choice, and character) which potentially impact e-loyalty were identified. Moreover, after the development of scales to measure the factors, seven of the factors (all but convenience) were found to impact e-loyalty.
St-Onge and Ouellet (2009)	Developed a web-site innovativeness (WSI) measurement scale.	Results of exploratory factor analysis revealed two factors for web-site innovativeness; namely, novelty and appropriateness. The proposed WSI measurement scale, in addition to being reliable, showed some evidence of content, discriminate, and construct validity.
Wang , Baker, Wagner and Wakefield (2007)	Investigated the effect of social cues on consumers affect and shopping value in retail web-sites.	Results suggest that social cues do induce perceptions of web-site socialness. Moreover, these social cues increase pleasure and arousal, which both influence flow, hedonic value, utilitarian value and patronage intentions.
Wolfinbarger and Gilly (2003)	Established the dimensions of the 'e-tail experience' and developed a scale for the measurement of e-tail quality.	Results of the analysis identified four factors of the 'e-tail experience' (website design, fulfilment/reliability, privacy/security and customer service) and showed that they are strong predictors of customer judgments of quality and satisfaction, customer loyalty and attitude toward the web-site.

Author	Purpose of Study	Findings / Conceptual Contribution
Zhang, Cracium and Sin (2010)	Examined the persuasiveness of eWOM in online shopping settings.	Findings suggest that consumers who evaluate products associated with promotion consumption goals perceive positive reviews to be more persuasive than negative reviews (i.e. a positivity bias). Conversely, consumers who evaluate products associated with prevention consumption goals perceive negative reviews to be more persuasive than positive reviews (i.e. a negativity bias).

2.3 THE RETAIL WEB-SITE

2.3.1 Commercial Retail Web-site as an Environment

The Internet, and more specifically the World Wide Web, facilitates a myriad of commercial web-sites satisfying different markets and purposes such as information search (Google, Bing, AOL), education (Wikipedia, Britannica), current affairs (CNET, Southport Reporter, Seattle Post-Intelligencer), and shopping (Amazon.com, eBay). While all web-sites are constructed of the same underlying technology (i.e. an array of pixels on the screen) how those pixels are presented and evaluated makes considerable difference in their meaning for users (Demangeot & Broderick, 2007).

Following this convention, a handful of researchers provide discussion on the conceptualisation of the retail web-site (Demangeot & Broderick, 2007; 2010; Rosen & Purinton, 2004; Rosenbaum, 2005; Williams & Dargel, 2004). In doing so, these authors extend the traditional research perspectives (e.g. Palmer, 1997) for the nature of online stores beyond electronic versions of print media, such as catalogues.

While most online retail researchers contend the online setting does not possess the same qualities or depth of information as the offline setting (e.g. Eroglu *et al.*, 2001), within this group of researchers, Rosen and Purinton (2004) suggest that as cognitive creatures, humans are capable of seeing beyond the simple structure of a single page and can create depth to a commercial web-site by linking pages, subsequently creating navigational paths and hierarchies of structure. According to Rosen and Purinton (2004) the web-site represents a cognitive landscape, possessing similar qualities as an offline landscape, such as a store. At a similar time, Williams and Dargel (2004) conceptualised the retail web-site as a "cyberscape" utilising Bitner's (1992) servicescape model. In adopting Bitner's servicescape model, the authors contended that the online retail experience holds many of the same characteristics as traditional service characteristics, and that the retail web-site provides many of the same cues found in a service setting. Moreover, the authors contend that the retail web-site can be conceptualised along the same environmental dimensions as the service environment – ambient conditions, space/function, and signs, symbols and artefacts.

Following these papers, in 2007, Demangeot and Broderick described the retail web-site from a gestalt perspective stating that "retail web-sites may be perceived...like their offline counterparts, as environments" (p.879). Much of this suggestion is based on

telepresence (e.g. Steuer, 1992), which refers to "the experience of presence in an environment by means of a communication medium" (Steuer, 1992, p. 76). Through telepresence consumers can perceive themselves within virtual (retail) environments. Based on this contention, Demangeot and Broderick (2007) suggested that consumers could distinguish between the parts of the web-site which created objective characteristics of the environment and the simple informational cues as found in catalogues. Empirical testing of a resultant model found that consumer behaviour in online settings reflects extant environmental response theory (see Demangeot & Broderick, 2010).

2.3.2 Defining the Retail Web-site

From a review of online retailing literature, no clear and concrete single definition of the retail web-site has emerged. Based on the preceding discussion however, a retail web-site can be conceptually framed as an online retail environment. Extending this view, according to Mehrabian and Russell (1974) everything external and independently measurable from the individual constitutes an environment. Therefore, along with the consideration that the online retail environment is a virtual environment which is perceived by online consumers (Demangeot & Broderick, 2007), the retail web-site is herein defined as:

The perceived external conditions and surroundings within virtual space designed to facilitate the exchange of goods and services between a single and specific retailer and a consumer.

2.3.3 Dimensions of the Online Retail Environment

Numerous researchers have proposed various different typologies for the dimensionality of the commercial web-site. For example, Huizingh (2000) suggests the web-site is made of two dimensions, *content* and *design*. Alternatively, based on Lewison's (1994) framework for the components of a store environment, Manganari *et al.* (2009) propose a four dimension framework composed of *virtual layout and design*, *virtual atmospherics*, *visual theatrics* and *virtual social presence*.

While most of the typological frameworks encapsulate the environment through two dimensions, a number of studies offer more than two dimensions (see Demangeot &

Broderick, 2007 – 3 dimensions; Harris & Goode, 2010 – 3 dimensions; Liang & Lai, 2002 – 3 dimensions; Manganari *et al.*, 2009 – 4 dimensions; Sautter *et al.*, 2004 – 4 dimensions). Generally however, the typologies offering more than two dimensions offer specialised components aligned to the purpose of their study (e.g. Harris & Goode, 2010 – Financial Security; Liang and Lai, 2002 – Media-Richness Factors) or attempt to encapsulate elements of both the built environment and the resulting atmosphere (e.g. Demangeot & Broderick, 2007 – Involving Qualities; Sautter *et al.*, 2002 – Symbolism). Consequently, the two-dimension typologies offer a more parsimonious description of the online environment. Within the two dimensional frameworks however, two general dimensions emerge; a dimension encapsulating the attributes related to core processes and information, and a dimension encapsulating the attributes related to auxiliary information and non-core processes. Based on Eroglu *et al.* (2001), these dimensions are termed high task-relevant and low task-relevant.

The high task-relevant dimension encapsulates all the attributes which appear on the screen to facilitate and enable the consumer's shopping goal attainment (Eroglu *et al.*, 2001). In their study, Zhang and von Dran (2000) term this component hygiene factors, which they identify as the attributes whose presence makes the web-site functional and serviceable. Similarly, Hausman and Siekpe (2009) termed these components computer factors, which they defined as the attributes that provide functionality. Examples of attributes encapsulated by the high task-relevant dimension include descriptors of merchandise, price, terms of sale, delivery, buttons, radio and check boxes, drop down lists, payment options, and shopping cart.

The low task-relevant dimension, by comparison, encapsulates all the attributes which are relatively inconsequential to completion of the shopping task (Eroglu *et al.*, 2001). In their study, Zhang and von Dran (2000) term this component the motivator factors, while Hausman and Siekpe (2009) termed this component human factors. In both studies, both factors were independently defined as the attributes whose presence adds value to the web-site by contributing to user satisfaction. Examples of attributes encapsulated by the low task-relevant dimension include number of visitors, music, graphics, background colour, language options, unrelated verbal content (e.g. "check this out"), entertainment, site awards, and affiliations.

Table 2-2 provides a summary of the literature in which dimensions of the online retail environment are proposed as well as exemplar attributes for each dimension as reported by the respective author(s).

2.3.4 Importance of the Retail Web-site in Online Consumer Behaviour

The importance of the retail environment in retailer evaluation has been noted in the brick and mortar literature. For example, researchers contend that a consumer can evaluate a retailer based on certain cues from the exchange environment (e.g. Baker, Levy & Grewal, 1992; Baker, Parasuraman, Grewal, & Voss 2002; Ward, Bitner and Barnes, 1992). Similarly, cues from the environment have been found to influence the behaviour exhibited by consumers in a retail setting (e.g. Chebat & Michon, 2003; Kotler, 1973).

Despite being more restrictive and lacking in sensory cues compared to the brick and mortar environment (Eroglu *et al.*, 2003; Park & Kim, 2003), the online environment has similarly been shown to be a source of cues which impact on both evaluations and behaviour. For example, consumer evaluations, such as risk and trust in interacting with an online retailer, have been found to be significantly influenced by cues from the environment (e.g. Keeling *et al.*, 2009; Roy, Dewit & Aubert, 2001). Additionally, e-commerce researchers have found that the environment provides general cues, such as mystery, as well as specific cues, such as Avatars, which both have a significant impact on consumer behaviour (Demangeot & Broderick, 2007; Eroglu *et al.*, 2003; Fiore & Jin, 2003; Wang *et al.*, 2007).

In addition, although previous research has identified that web-sites can include social elements (e.g. Wang *et al*., 2007), the online environment, unlike the brick and mortar setting, has been slow in recognising the benefits of social cues in the marketing exchange and remains characterised by an inherent lack of socially binding interactive cues (Bendicktus, Brady, Darke & Voorhees, 2010; Eroglu *et al.*, 2001).

Table 2-2 - Summary of Proposed Dimensions of Online Environment

Authors	Proposed Elements of Online Environment	Description of Element	Exemplar Attributes or Attribute Groups
Demangeot and Broderick (2007; 2010)	Ease of Understanding	The ability of the web-site's design to facilitate navigation, orientation, information gathering, and access to the desired parts of the web-site or the right products.	Site design, convenience, ease of use, spatial layout, functionality, efficiency, system design quality, technical adequacy, usability, navigation, intuitive operation, appearance, organisation, utilitarian, performance, coherence, legibility, variety.
	Informativeness	The presence of quality and plentiful information.	Product information, information content, cultivation, choice, design, information, accuracy, service quality, merchandising, information quality, information specificity.
	Involving Qualities	*Not strictly defined, however described as following:* Reflects the two and three dimensional qualities of the web-site which enhance the visual as well as engaging elements of the web-site.	Sensation, contact interactivity, character, ambient conditions, signs symbols artefacts (tangible and intangible), enjoyment, playfulness, appearance, interactivity, visual appeal, innovativeness, entertainment, intangible, hedonic, performance, mystery, diversity, legibility.
Demangeot and Broderick (2010)	Two-Dimensional Attributes	Those elements which can be perceived immediately. The atmosphere instilled by the current page.	Sensation, contact, interactivity, character, ambient, conditions, sign symbols and artefacts, enjoyment, playfulness, atmospheric, human factors, aesthetic appearance, visual appeal, innovativeness, flow, entertainment, hedonic performance, experiential, low-task-relevant cues, complexity, mystery, diversity.

Authors	Proposed Elements of Online Environment	Description of Element	Exemplar Attributes or Attribute Groups
cont...			
	Three-Dimensional Attributes	Those elements which are inferred from a scene. The atmosphere instilled from the succession of pages visited during one shopping navigation.	Site design, functionality, convenience, ease of use, space, function, spatial layout, functionality, efficiency, system design, quality, technical adequacy, usability, navigation, common factors, organisation, ease of understanding, intuitive operation, appearance, utilitarian, performance, high task-relevant cues, coherence, legibility.
Eroglu *et al.* (2001; 2003)	Low Task-Relevant	Represent site information that is relatively inconsequential to the completion of the shopping task.	Unrelated verbal content (e.g. "check this out"), colour, borders and border patterns, background and background patterns, typestyles and fonts, animation, music and sounds, entertainment, white-space, icons, image maps, decorative pictures/images, indications of secure unity of site, connections/transactions, web counter, affiliations, site awards.
	High Task Relevant	All the site descriptors (verbal or pictorial) that appear on the screen which facilitate and enable the consumer's shopping goal attainment.	Descriptions of merchandise, price, terms of sale, delivery, return policies, pictures of merchandise, availability of sampling, site map, guide bar at top or bottom of page.
Harris and Goode (2010)	Aesthetic Appeal	Online ambient conditions and the extent to which consumers interpret the servicescape as attractive or alluring.	Site and page graphics, congruent backgrounds, consistent typography, colours, perceived modernity, entertainment.

Authors	Proposed Elements of Online Environment	Description of Element	Exemplar Attributes or Attribute Groups
cont...			
	Financial Security	The extent to which consumers perceive the payment processes and general policies of a web-site as secure or safe.	*None specified.*
	Layout and Functionality	Layout: The arrangement, organisation, structure, and adaptability of web-sites. Functionality: The extent to which online items/elements facilitate service goals.	Usability, information content and relevance, interaction, personalisation, functionality, navigability.
Hausman and Siekpe (2009)	Computer Factors	Elements which provide functionality.	System capability, user guidance, menus, icons, page length, number of links, drop down menus, buttons, radio and check boxes, indication of security/secure site, clear displays of page contents, presence of clear menu items on each page, presence of shopping cart, up-to-date information, un-do button, assurance of privacy, payment options, purchase tracking services, company logo, consistent web page design, declaration of intended use, logical webpage information, offers order confirmation.
	Human Factors	Hedonic elements that add value to the web-site by contributing to user satisfaction.	Global search feature, humour, language options, links to similar web-sites, feedback features, gift services, number of visitors to site, colours, graphics, music, jargon free terminology, humour, entertainment value, background colour, visual images, information density.

Authors	Proposed Elements of Online Environment	Description of Element	Exemplar Attributes or Attribute Groups
Huizingh (2000)	Content	The information features or services that are offered in the web-site.	Commercial information (company & products), non-commercial information, transaction, entertainment, advanced features.
	Design	The way the content is made available for web visitors.	Navigation structure, search function, protected content, quality of structure, image, presentation style.
Liang and Lai (2002)	Motivation Factors	*Not defined* (see Zhang & von Dran, 2000)	Good search engine.
	Hygiene Factors	*Not defined* (see Zhang & von Dran, 2000)	Good security.
	Media-Richness Factors	*Not strictly defined, however described as:* Elements whose presence enhances the depth and dynamism of the web-site.	Providing chat rooms.
Manganari *et al.* (2009)	Virtual Layout & Design	*Not defined*	Grid layout, free-form layout, racetrack layout.
	Virtual Atmospherics	*Not defined*	Background colour, colour scheme, percentage of white space, background music, fonts, scent appeal.
	Visual Theatrics	*Not defined*	Animation techniques, images, vividness, interactivity.

Authors	Proposed Elements of Online Environment	Description of Element	Exemplar Attributes or Attribute Groups
cont...	Virtual Social Presence	*Not defined*	Web counter, comments from other visitors, crowding.
Sautter *et al.*(2004)	Vividness	The richness of environmental information presented to human senses, based on breadth (the resolution or fidelity of information) and depth (the number of sensory dimensions concurrently activated).	*None specified.*
	Interactivity	The susceptibility and responsiveness of computer-mediated environments to user control.	*None specified.*
	Symbolism	Explicit or implicit signals to communicate about the place to its users.	Certification, ratings.
	Social Elements	The appearance and/or demeanour of shoppers and employees.	Shopping agents, online communities.
Zhang and von Dran (2000)	Hygiene Factors	Elements whose presence makes the web-site functional and serviceable (the absence of these elements creates dissatisfaction).	Technical aspects, navigation, privacy and security, surfing activity, impartiality, information content.
	Motivator Factors	Elements whose presence adds value to the web-site by contributing to user satisfaction.	Enjoyment, cognitive outcomes, credibility, visual appearance, user empowerment, organisation of information.

In traditional brick and mortar retail environments, social cues have demonstrated a significant influence on consumer behaviour (e.g. see Baker *et al.*, 1994; Luo, 2005; Hu & Jasper, 2006; Sherman, Mathur & Smith, 1997). In service-based environments, social cues are important indicators about the environment. For example, in service environments, service quality is commonly assessed through evaluations of and interactions with service providers (Czepiel, 1990; Parasuraman, Zeithaml & Berry, 1985), whereas in less service directed environments, shopper cohort characteristics provide vital cues on store demographics and congruency (Hu & Jasper, 1990). It is likely the lack of social integration is in part due to uncertainty of the long-term effects of social cues. In particular, while social cues (such as Avatars) have been introduced to online retailing (e.g. Keeling *et al.*, 2009), the effect of these in longstanding relationships has not been researched and consequently remains unknown. Therefore, in online environments, where social cues are inherently missing, greater weight falls on the non-social dimensions to provide evaluative, navigational and informational cues (Eroglu *et al.*, 2001).

2.4 CHANGE

As outlined in Section 1.2, the purpose of this study is to examine how consumers respond to a change in the commercial retail web-site. Given this focus, it is necessary to review change related research.

2.4.1 An Introduction to Change

In the general sense, change refers to a transformation or modification of something over time (Rensink, 2002). Inherent in this broad conceptualisation is the presumption that change is imposed onto some unchanging substrate (or underlying structure). Therefore, the only requirement for change to occur is that the underlying structure exists for the entire duration of the transformation (Rensink, 2002). Consequently, change can be more precisely defined as "the transformation, over time, of a well-defined, enduring structure" (Rensink, 2002, p. 248).

From a review of the literature it appears that change is a pervasive part of everyday life. Consequently, the term change within research has multiple applications. As a verb, *to change* refers to the process of creating difference, yet as a noun *the change* refers to the

object resulting from the difference creation process. This distinction has been noted by previous researchers; for example, Rensink (2002) distinguished the observation of change in progress from the observation of something that has changed, terming the two dynamic and completed change, respectively. As both forms of change are satisfied by the definition of change (see above), for the purposes of this study dynamic change refers to *the process of transforming a structure*, whereas completed change refers to *the perception the structure has been modified at some point*.

Although both types of change are discussed throughout this thesis, the focus of this research is on how consumers respond to the *completed* change in a commercial retail environment. Consequently, for the remainder of this thesis, the use of the term *change* refers to completed change. Additionally, for clarity of meaning, in the remainder of this thesis, the term *the change process* refers to dynamic change.

Based on these distinctions, while the change process has been studied in great detail within numerous contexts in marketing (e.g. Consumer Behaviour, Services Marketing, B2B Marketing – Andersson & Molleryd, 1999; Droge, 1989; Fishbein & Middlestadt, 1995; Gadde & Mattsson, 1987; Gibson, 2008; Scott & Mende, 2007; Sutton-Brady, 2008), only sparse research has investigated completed change in marketing. The paucity of research examining completed in extant literature is particularly surprising since almost all elements of the marketing mix are marketplace stimuli which frequently undergo change, such as advertising, packaging, pricing, and even products themselves.

2.4.2 Change in Marketing

Over the past 30 years only a handful of researchers have investigated the effects of changes in various business elements and stimuli from the marketing mix on consumer response and business outcomes, albeit a piecemeal collection of research. For example, the effects of simple changes to elements of the business have been explored; Nordstrom and Swan (1976) found that a change in the ownership structure of a car dealer alters brand and store loyalty. Similarly, Horsky and Swyngedouw (1987) found that the profit performance of a firm increased when it changed its name, particularly for businesses who were relatively poor performers prior to change.

The effects of changes to marketing mix elements have also been explored; for example, early work by Bhalla and Lastovicka (1984) explored responses to statutory warnings on

cigarette print advertisements. In addition, Sjodin (2007) examined brand change and whether the role of perceived risk could influence consumer response to brand changes, finding that risk in the brand and risk in the relationship are two considerations consumer face when brands change. Finally, Mazumdar and Jun (1993) explored consumer evaluations in the face of multiple versus single price changes. The authors found that consumers responded best to a single large price increase than multiple smaller price increases to the same value, whereas price decreases were most favourable when the price decrease was broken into a larger number of smaller price changes.

Given the paucity of research on completed change in marketing, it is possible that the prominence of the term 'change' is absorbed through the use of specialised terminology for marketing phenomenon; for example, re-branding or re-positioning. Such phenomena provide salient examples of change within marketing and as such could provide further insights for a study on change. Consequently, the review of previous research is now extended to examine these areas.

2.4.3 Examples of Change within Marketing

Within marketing, re-branding, re-positioning, just noticeable difference, and innovation are examples of change.

Re-positioning and re-branding provide the first examples of change within marketing. Specifically, when an organisation re-positions or re-brands its products or services they are effectively instilling a change within their marketplace presence. Numerous authors have studied the effects of re-branding and re-positioning. For example, Hemsley-Brown and Goonawardana (2007) explored brand re-positioning within a higher education context. In addition, Glazer and Weiss (1993) examined the prominence of product re-positioning in turbulent markets. However, with respect to the current study, few empirical insights can be gained from these areas of research. Specifically, most research on re-positing and re-branding, while exemplifying change, does not enlighten the consequences of change.

Innovation provides the second example of change in marketing. Innovation *can* be an example of change. Specifically, while a number of innovations and new products are genuinely new (e.g. augmented reality) other innovations and new products are simply restyled or changed versions of existing products (e.g. iPad/iPad2). This notion is well

documented in the innovation literature; For example, Robertson (1971) identified that distinguishing new products from not new products is difficult. Moreover, Rink and Swan (1979) stated that typology-based differentiations are instrumental in alleviating the difficulty inherent with determining whether a new item is simply a variation of an old one (i.e. a changed object). As such, authors have proposed typologies for distinguishing between innovations based on the degree of newness they provide. Most modern typologies distinguish innovations by classifying the newness of their functions and resultantly explain technology and innovation match-up; however, Patton's (1959) typology, which is based on the degree of modification from a common source point, clearly accommodates change as a component of innovation. Specifically, Patton (1959) proposes a four-way typology, whereby innovation can be classified as a) unquestionably new, b) partially new, c) major change, and d) minor change. Based on these categorisations, change is a component of innovation, defined by the degree of newness.

Consequently, two considerations for the current study arise from the innovation literature. The first consideration relates to how the degree of change influences information processing. Specifically, previous research has identified that the degree of perceived newness influences the type of information processing utilised to understand and categorise the innovation (e.g. Gatignon & Robertson, 1991). The second consideration relates to the relativity of newness. In particular, how consumers evaluate the newness of an object is related to other related objects. Similar to the findings from the innovation literature, Berlyne (1960) identified that there are many degrees and types of 'new' stimuli. In his discussion on newness, Berlyne identified that the degree of newness depends on other objects of a similar nature or form, suggesting newness is a relative measure. Consequently, in a change situation, large amounts of change which deviate from the source are likely to result in perceptions of new stimuli as opposed to changed stimuli (Berlyne, 1960).

Finally, Noticeable Difference provides the last example of change in marketing. Noticeable difference refers to the degree to which the modification of an object is recognised. More specifically, in marketing, noticeable difference is applied as in just noticeable difference, which represents the minimum amount of change in a stimulus required for a stimulus to be perceived to have changed (see Monroe, 1973).

The noticeable difference literature highlights two key considerations for studying change. The first consideration is that change is perceived (Gupta & Cooper, 1992). Particularly, regardless of whether there is an actual (physical) difference, unless change is noticed, the consumer does not consider change to have occurred (Gupta & Cooper, 1992). The second consideration, similar to newness, is that the recognition of change is relative. Based on Weber's Law (e.g. see Neider & Miller, 2003), which states that the increment in stimulus intensity needed to produce a just noticeable difference (JND) is directly proportional to the stimulus, the complexity of the original stimulus affects the size of the difference (or change) required for a consumer to perceive the change (Monroe & Lee, 1999; Steenkamp & Gielens, 2003). In particular, a complex stimulus (i.e. one with a lot of variety or diversity – Giessler, Zinkhan & Watson, 2006) requires a greater degree of change before the change is noticeable, whereas a relatively simple stimulus requires only a small change before the difference is noticeable.

2.4.4 Need for Change, Change Seeking, Variety Seeking and Novelty

While change within a marketing context can be engendered by the marketer, change can also be driven by consumer actions. Specifically, in a special stream of stimulus research, change has been conceptualised as a need. In this stream, consumers are believed to actively seek out a change in their consumption behaviour (variety) simply for the sake of inducing novelty in their experiences (Baumgartner & Steenkamp, 1996; Steenkamp & Baumgartner, 1992). Such change seeking behaviour has been explored alongside numerous other consumer phenomena to help understand unexpected behaviours. For example, researchers have examined change seeking ion relation to switching behaviour (e.g. Sharma, Sivikumaran, & Marshall, 2010), exploratory shopping behaviour (e.g. Hoyer & Ridgeway, 1984) and impulse purchasing (e.g. Punj, 2010). Consequently, this stream of research suggests that at least some consumers enjoy, and actively seek, the variety created by modifying the activities and stimuli they engage with.

While research into change in marketing does provide some insight it is clear that there are significant restrictions on the ability to draw conclusions from this research alone. Consequently, an extended review of change within related disciplines is required. Specifically, the current review is now extended to include areas of research from

psychology. In the psychology research, two areas of research on change appear dominant – object centric change, termed stimulus change and change detection.

2.4.5 Change in Psychology Research

2.4.5.1 Stimulus Change

In contrast to the piecemeal assortment of studies within marketing, the study of change within the psychology literature has developed with greater continuity.

One of the long-standing findings within the psychology literature is that a change to a stimulus affects the response to that stimulus (Bindra, 1959, Franken, 1967; Grim & White, 1965; O'Connell, 1964). For example, Bindra (1959) and Claus and Bindra (1960) suggested that responses to changes vary based on the newness or novelty of the situation. In particular, Bindra (1959) suggests that if any animal is trained to give a response in a particular situation, any alteration in the stimulus characteristics of the situation typically results in a decrement in the strength of the trained response because the changes engenders a set of reactions to the novelty provided by the stimulus which interfere with the trained responses. Work by Claus and Bindra (1960) found that this response was engendered across multiple forms of change. Consequently, regardless of the degree of change, change will have its own response – termed a novelty reaction.

In support of such findings, Grim and White (1965) found that the degree of change evoked in the stimulus directly influenced reaction times to the changed stimuli. Similarly, Franken (1967) found that stimulus change motivated and reinforced exploratory behaviour with the changed stimulus. Additionally, O'Connell (1964) found that changing a stimulus could affect choices related to interactions with that stimulus. In particular, O'Connell (1964) found that when faced with competing familiar stimuli, modifications to one of the stimuli affected the choice of stimulus interaction. While previous research has demonstrated a natural tendency to vary behaviour as a self-driven form of sensation seeking (e.g. see McAlister & Pessemier, 1982), the choice effects reported by O'Connell (1964) were in addition to such sensation seeking effects. Such findings support earlier work from Berlyne (1960), who suggested that stimulation from an unfamiliar object creates an inherent need to explore the object.

Bronson (1968) suggested that fear could arise when a person is confronted with visual novelty (i.e. change). However, little research has discovered why these reactions occur.

Berlyne (1960) suggested that novel stimuli convey degrees of uncertainty varying in-line with the degree of novelty. Perhaps then, the less familiar the object, the more uncertainty there is about that object; particularly how to interact with it, and the consequences of interacting with it. Similarly, Niepel (2001) explored the notion of unexpected change and found that when change is unexpected, larger effects from change were found than when change was expected. Moreover, the effects were even stronger when the change was not only unexpected but also differed from respondents' expectations of how the change would be engendered.

While the study of stimulus change has continued in the psychology literature since the late 1970's, subsequent studies carry a narrow focus which extend the applicability of their findings beyond the scope of this study (e.g. Iwata, 2006; Troche, Houlihan, Stelmack & Rammsayer, 2010; Yamashiro, Inui, Otsuru & KaKigi, 2011). For example, in their study of auditory changes Troche *et al.*, (2010) examined the effects of memory waves in response to auditory stimulus change and prompts for memory discrimination (i.e. ignoring a stimulus). Similarly, Iwata (2006) furthered the discussion on whether negative and positive reinforcement of a stimulus (i.e. the removal or addition of stimulus elements during change) is an appropriate paradigm in examining stimulus change. Consequently, while these studies contribute greater depth to their field, they provide little additional insight for the current study.

2.4.5.2 Change Detection

Although like stimulus change, change detection has been studied for numerous decades (e.g. French, 1953, MacMillan, 1971; Pashler, 1988; Pollack, 1972; Wallach & Lewis, 1966), it wasn't until the late 1990s and early 2000s that a steady stream of research from the psychology field emerged examining the mechanisms by which change is detected amongst realistic stimuli (Rensink, 2002).

According to Agostinelli, Sherman, Fazio and Hearst (1986) change *recognition* involves two stages: the initial recognition of the change (detection) and the specification of the change (identification). However, Rensink (2002) posited that change detection actually has three parts: detection proper (observer can identify change exists), identification (observer can report what the change is), and localisation (observer can report where the change is). Based on these frameworks, change detection is reliant on a store of memory related to the initial stimulus (Demany, Semal, Cazalets & Pressnitzer, 2010), however,

the identification of change is not a requirement for change detection to occur, meaning that change can occur as a feeling, or a sense that change has occurred and, based on Rensink's (2002) adaptation, can occur at either the gestalt or elemental level of the object.

A number of influences on change detection have been identified. For example, motion has been shown to influence change detection (e.g. Wallis & Bulthoff, 2000) in such a way that movement reduces change detection and that active movement (i.e. a driver) demonstrated worse change detection performance than passive movement (e.g. a passenger), due to split concentration effects. In addition, the size of change has been shown to effect change detection. Specifically, Williams and Simons (2000) found that larger changes (i.e. involving more individual modifications) were more difficult to detect than smaller changes. (i.e. the more changes there were the more difficult each individual change was to detect). Moreover, the type of change was found to influence change detection. In particular, Mondy and Coltheart (2000) examined the effects of additions and deletions on change detection and found that deletions (i.e. the removal of an object which is expected) increased change awareness more than additions due to the expectation the deleted attribute would exist as opposed to the expectation the addition would be made.

One of the key considerations for change detection arising from this extant research is attention (e.g. Mondy & Coltheart, 2000; Rensink, 2002; Rensink, O'Regan & Clark, 2000). Rensink *et al.* (2000) found that detection was self-terminating and greater detection occurs with more (i.e. longer durations of) attention. Additionally, researchers have found that if subjects are advised that change would occur, more attention was paid to the specific features of the stimulus (Mondy & Coltheart, 2000) and greater change detection would occur (Rensink, 2002). Consequently, greater knowledge of, experience with, and attention to a stimulus, is likely to enable greater change detection when that stimulus is changed (Mondy & Coltheart, 2000; Rensink, 2002). Research such as this is key support for the notion that detection of changes for familiar objects is generally better than for novel objects (e.g. Williams & Simons, 2000).

The Role of Complexity in Change Detection

As discussed in Section 2.4.3, research from noticeable difference suggests that detection of difference is directly related to the complexity of the stimulus. In support of the idea that complexity does play a role in change detection, Williams and Simmons (2000) determined that all aspects of complex changes were more difficult to detect. Moreover, Taylor (1974) found that changes to complex stimuli resulted in stimuli that were perceived to be more novel than stimuli resulting from changes made to less complex stimuli. Supporting

However, these assertions are inconsistent within the literature. In particular, Rensink (2002) contradicts the complexity argument and suggests that a person's attention to a stimulus, more than any other situational characteristic, influences their ability to detect change. Consequently, Rensink (2002) suggests that complexity is an irrelevant component in change detection. According to Rensink, all change, regardless of complexity, is eventually detected.

In support of Rensink (2002), research from the related detection literature demonstrates that complexity is not related to change in an object. For example, previous studies have shown that complexity plays no role if the object being changed is changed quickly, as the short delay between exposures enables detection of both simple and complex change (e.g. Alvarez & Cavanagh, 2004; Pashler, 1988). However, the short duration condition does not offer universal support for Rensink's (2002) assertion.

2.4.6 The Role of Schemata in Change

Given the importance memory plays in change detection (e.g. Demany *et al.*, 2010), it is understandable that Lau (1990) and Lau and Woodman (1995) contend that understanding schemata can help understand responses to change events.

2.4.6.1 Schemata

The earliest conceptualisation of a schema is found in Bartlett (1932), where a schema is defined as "an active organization of past reactions, or of past experiences" (p.201). However, the development of a focused field of schema research has resulted in a more detailed conceptualisation. In particular, a schema has become defined as "a cognitive structure that represents organized knowledge about a given concept or type of stimulus" (Fiske & Taylor, 1984, p. 537). According to Lau and Woodman, (1995) this definition

encompasses most meanings embedded in different conceptualisations of mental structure (Lau & Woodman, 1995) and has been (in general) applied in much of the schemata research (e.g. Schutzwohl, 1998; Smith & Natesan, 1999; Sujan & Bettman, 1989).

Consistent with Bartlett's original definition, current perspectives on schemata posit that the development of a schema is based on an individual's past experiences and beliefs (Cantor, 1990; Lau & Woodman, 1995; Walsh & Charalambides, 1990). Consequently, a schema contains not only the attributes of the concept but also the relationships among the attributes (Brewer & Treyens, 1981), allowing the schema to act as both a source of information and an agent for processing external sources of information. Schemata, therefore, enable observers to understand and make sense of external stimuli (Schutzwohl, 1998). Moreover, schemata help people to simplify, effectively manage, make sense of information in their surrounding environments, and guide the cognition, interpretation and mechanisms for understanding events or objects (Lau & Woodman, 1995; Marshall, 1995), particularly complex events or objects (Kahneman, Siovic & Tversky, 1982). In fact, Marshall (1995) contends that an individual's schema is a central component of their ability to solve and manage complex problems. Additionally, schemata enable a person to predict the future or make inferences by tapping into knowledge about the likelihood that particular outcomes or events would occur (Taylor & Croker, 1981).

Schemata are organised into hierarchies (Meyers-Levy & Tybout, 1989; Sujan & Dekleva, 1987), whereby specific schemata (e.g. Google Search) are stored within more general schemata (e.g. Search Engines). The existence of these hierarchies enable unfamiliar stimuli to be processed. Additionally, schemata exist at various levels of abstraction and vary in their structural complexity (Brewer & Treyens, 1981). Specifically, "just as multiple attitudes may come into play at a given time, so too may multiple schemata influence behavior" (Lau & Woodman, 1995 p. 537). Consequently, multiple schemata can simultaneously influence responses to stimuli.

Moreover, schemata have also been shown to have a profound effect on the processing of new information (Sujan & Bettman, 1989), such as that developed during change. A person's schema is largely subconscious in that the processes by which schemata form are relatively subconscious (Williams & Simmons, 2000); however they do influence

conscious learning and problem solving (Marshall, 1995). Moreover, a person's schema is utilised subconsciously to help them manage and interpret complex events (Marshall, 1995). Not surprisingly, prior experiences are therefore expected to influence the perception, comprehension and response to new information (Brewer & Treyens, 1981).

2.4.6.2 Schemata, Change and Change Detection

Schemata provide a pivotal function in change situations. Specifically, a schema provides a person with a frame of reference about the stimulus (Lau & Woodman, 1995). In particular, as schemata represent stored knowledge about a stimulus, they provide a person with a series of expectations about the stimulus (Pezdek, Whetstone, Reynolds, Askari, & Dougherty, 1989), and therefore can function as the reference point from which differences in stimuli are recognised. When an object is exposed to change, the stored information about the stimulus (in part) no longer matches the stimulus and the effectiveness of the schema in guiding interactions with that stimulus is impaired (Brewer & Treyens, 1981).

However, not all information (particularly detail or descriptive information) is stored in a schema for a particular scene (Brewer & Treyens, 1981). Therefore the detection of change for an object in a scene is likely to be reduced (or not even occur) if the change maintains the global design of the object (Rensink, 2002), and does not compete with existing typologies for the object (i.e. upholds the existing object schema). For example, when realistic drawings or photographs of scenes are presented, people rapidly comprehend the basic idea of the scene using higher order schematic knowledge (Biederman, Mezzanotte & Rabinowitz, 1982). However, as a consequence, the processing of lower perceptual detail is inhibited and changes are not detected (Johnston & Hawley, 1994). Only when the information provided by the object interrupts or contradicts information within the schema can change be detected (Brewer & Treyens, 1981). Moreover, according to sense-making theory, when schemata are interrupted, individuals must attend to the interruption and understand it before they can continue processing information (e.g. see Louis, 1980; Sjödin & Törn, 2006).

Subsequently, prior research has provided three alternate outcomes when a person faces a mismatch in the expected information and the actual information from a stimulus. When information is only slightly mismatched, the existing schema is applied and the mismatch processed in a piecemeal style on an attribute basis (Rensink, 2002). However, if the

mismatch is large, other available schemata are explored and the mismatch is processed in a direction away from the current schema – termed contrast (Lee, 1995). In extreme cases, the development of a new schema – termed accommodation (Sujan & Bettman, 1989) can occur to enable the processing of the mismatch.

The Change Schema

Given Marshall (1995) argues that an individual's schema is a central component of their ability to solve and manage complex problems, not surprisingly Lau and Woodman (1995) suggest that change has its own schema, which is applied to enable a person to process, understand, and comprehend change. Such a schema involves a pattern of processes to deal with change and form appropriate responses. According to Lau and Woodman (1995), a change schema is influenced by personal disposition, such as commitment to the stimulus (or its parent), openness for newness, or perception of the ability to control the change. Consequently, it is likely that schemata create a series of expectations (not only about the form of objects, but also the function of objects), which in the face of changes is likely to be disrupted by creating a contrast with expectations. Consequently, consumer processing of the information provided by the change for familiar objects will utilise both specific schemata (i.e. object-related schemata) and broader general schemata (e.g. change schemata).

2.4.7 Conceptualising Change in the Retail Web-site

In the preceding sections, both the retail web-site and change were introduced and discussed. Within these, useful insights regarding change within an online retail environment were presented. In particular, the prominence of two broad online environment dimensions and the importance of creating noticeable difference in engendering effective change were identified. Building upon these insights, a conceptualisation of change within the online retail environment is presented next.

2.4.7.1 Change in the Retail Web-site

Change in the commercial retail web-site can be engendered through creating noticeable differences in the attributes from either of the two broad dimensions of the retail web-site (task-relevant and non-task-relevant). Moreover, changes on both dimensions can happen simultaneously, so the two dimensions are mutually exclusive allowing individual effects

on consumer response. Consequently these two types of change function as independent variables in this study.

Task-Relevant Change is defined as:

The valance of: the noticeable differences within an online environment which influences or has the potential to influence how a user interacts with the web-site to achieve shopping or task related goals.

Non-Task-Relevant Change is defined as:

The valance of: the noticeable differences within an online environment which are relatively inconsequential to the attainment of shopping or task related goals.

2.5 CHANGE IN COMMERCIAL RETAIL WEB-SITES

While retail web-sites have been constantly changing over the past 15 years, recent large scale refurbishment to the retail web-sites of established online retail firms could indicate an emerging trend in online retailing (e.g. ASB, Mighty Ape, National Bank). As a result, change within online retailing is of timely interest for managers and academics alike, yet conceptual or empirical research offering insight into the effects of a change in the online retail environment on consumer behaviour is lacking. While such research is lacking, researchers exploring related concepts have alluded to the role of change in commercial websites. Tremblay *et al.* (2009) adopt a technological perspective and suggest that the Internet has not reached its full potential, and as such, web-sites will change through innovation. Blake, Neuendorf and Valdiserri (2005) adopt a consumer perspective and suggest that consumers are not satisfied with current web-sites and like to navigate on new and different web-sites, which should encourage market aware online retailers to activity pursue change.

Due to the lack of research on change in online retailing, this research extends the conceptualisation of the retail website as an environment to conceptualise change in the web-site as a *change in the online consumption environment*. Therefore, addressing the question of how consumers respond to a change in the web-site can be guided by

research related to how individuals respond to environments. In the section following, such environmental response research is presented and discussed.

2.6 ENVIRONMENTAL PSYCHOLOGY IN ONLINE RETAILING

Although few authors explicitly examine the online setting as an environment (see Section 2.3.1), many contributions to the online retail literature are based on theory grounded in environmental studies from the offline setting. For example, seminal work on the influence of web-site elements on consumer behaviour was based on the Stimulus-Organism-Response theory developed by environmental psychologists (see Eroglu, 2001; 2003). Moreover, examinations of the effects of specific new or novel web-site elements often follow theory developed from Kotler's (1973) atmospherics research and demonstrate perfect fit with environmental psychology frameworks (e.g. Fiore *et al.*, 2005).

In the offline environment two competing theories for environmental response are prominent. These two frameworks are based on either an emotion mediated response (Stimulus-Organism-Response – Mehrabian & Russell, 1974), or a cognition mediated (Preference Framework – Kaplan & Kaplan, 1982) response. However, with the advancement of theory, and need to combine cognitive and emotional responses (Chen, 2008; Eroglu *et al.*, 2001), the ability to integrate cognitive mediation into the Stimulus-Organism-Response (SOR) paradigm has enabled the SOR paradigm to be the most widely applied, and broadly based framework for exploring consumer response to environmental stimuli.

2.7 SOR PARADIGM

2.7.1 Introduction to the Stimulus-Organism-Response (SOR) Framework

The SOR paradigm was introduced into marketing by Donovan and Rossiter in 1982 in a paper titled *Store Atmosphere: An Environment Psychology Approach*. Within their paper the authors introduce the SOR paradigm adopted from earlier work by environmental psychologists Mehrabian and Russell (see Mehrabian & Russell, 1974). Based on Donnovan and Rossiter's article (see Donovan & Rossiter, 1982), the premise of any

SOR is that stimuli (S) influence an individual's internal state (or organism response) (O) which mediates their behavioural responses (R) (see Figure 2.3). In other words, the relationship between stimulation and responsive behaviour is mediated by the intervention of the internal responses of the organism exposed to the stimuli.

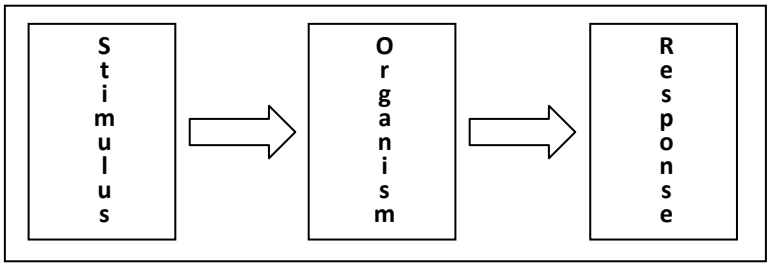

Figure 2-1 – SOR Paradigm

Since the introduction of the SOR paradigm by Donovan and Rossiter in the early 1980s, the SORs has been applied within retailing in both general and specific contexts:

Within the brick and mortar literature researchers such as Bitner (1992) and Baker *et al.* (1992) have used SOR paradigms as frameworks in conceptualising broad environments. Additionally, researchers have employed the SOR paradigm to explore the effects of specific variables such as music (e.g., Chebat, Chebat & Valliant, 2001; Morrison, Gan, Dubelaar, & Oppewal, 2010), odour (e.g., Chebat & Michon, 2003; Morrison *et al.*, 2010), and crowding (e.g., Eroglu, Machleit & Barr, 2005; Machleit, Eroglu, & Mantel 2000) in more specific contexts.

Similarly, within the online retailing literature, the SOR framework has been applied at a general level in conceptualising the online environment (e.g. Eroglu *et al.*, 2001; Williams & Dargel, 2004), as well as at more specific levels to explore the effects of specific web-site attributes on consumer behaviour. For example, an SOR model was used by Daily (2004) to conceptualise the potential negative consequences from restrictive navigational controls. Additionally, Kim, Fiore and Lee (2007) used an SOR model to examine how the level of image interactivity influenced desire to stay online and patronage intentions. Similarly, in a study by Wang, Minor and Wei (2011), the SOR paradigm was utilised in the investigation of web-site aesthetics and their impact on various shopping behaviours. Table 2-3 provides a summary of how the SOR framework has been applied in the online retailing literature.

Table 2-3 - Summary of SOR Research in Online Retailing

Authors	Stimulus Variable(s)	Organism Variable(s)	Response Variable(s)	Major Findings
Stimulus-Organism-Response in Conceptual Literature				
Dailey (2004)	– Navigational Control	– Reactance – Flow – Emotion – Attitude	– Approach / Avoidance	This paper was a conceptual framework investigating the potential negative consequences from restrictive navigational controls.
Eroglu, Machleit and Davis (2001)	Online Environment Cues – *High Task Relevant Cues*[a] – *Low Task Relevant Cues*	– Affect – Cognition	– Approach – Avoidance	This paper was a conceptual framework for investigating the potential influence of the atmospheric qualities of a virtual store.
Stimulus-Organism-Response in Empirical Literature				
Chang and Chen (2008)	Online Environment Cues – *Web-site Quality* – *Brand*	– Trust – Perceived Risk	– Purchase Intention	The findings support that web-site quality and brand dimensions affect purchase intention through trust and risk.
Davis, Wang, and Linbridge (2008)	– Low Task Relevant Cues (presence/absence)	– Pleasure – Arousal	– Satisfaction – Approach Avoidance	The purpose of this study was to examine if Chinese and American students respond differently to online atmospherics; results support cultural differences particularly in the strength of the mediating roles for arousal and pleasure.
Fiore, Kim and Lee (2005)	– Level of Interactivity – Image Technology	– Telepresence – Instrumental Value – Experiential Value	– Attitude toward the Retailer – Willingness to Purchase – Willingness to Patronise	Findings support that the effect of level of image interactivity on consumer response is mediated by the consumers' online experience (telepresence, instrumental and experiential value).

Authors	Stimulus Variable(s)	Organism Variable(s)	Response Variable(s)	Major Findings
Jang and Namkung (2009)	– Product Quality – Atmospherics – Service Quality	– Positive Emotion – Negative Emotion	– Behavioural Intentions	The results show that service quality and atmospherics increase positive emotion, while product attributes reduce negative emotion. Moreover, that positive emotion is reported to positively affect behavioural intentions.
Jeong *et al.* (2009)	– Product Presentation Features	Four Experience Realms – *Entertainment* – *Educational* – *Escapist* – *Esthetic* Consumer Emotion – *Pleasure* – *Arousal*	– Web-site Patronage Intention	The results indicate that web-site features affected the 4Es, and three of the 4Es (entertainment, escapist and esthetic experiences) influenced pleasure and/or arousal. Pleasure, arousal, entertainment, and esthetic experiences had direct effects on web-site patronage intention.
Kim, Fiore and Lee (2007)	– Level of Image Interactivity	– Online Store Perception – Online Shopping Involvement – Online Shopping Enjoyment	– Desire to Stay Online – Patronage Intention	Results support that both the cognitive and affective internalised responses mediate the relationships between level of image interactivity and patronage intention.
Koo and Ju (2010)	– Graphics – Colours – Links – Menus	– Pleasure – Arousal	– Intention	Findings support that the four atmospheric variables affect pleasure and arousal which in turn positively affects behaviour.

Authors	Stimulus Variable(s)	Organism Variable(s)	Response Variable(s)	Major Findings
McKinney (2004)	– Atmospheric Variables	– Shopping Orientation	– Satisfaction	Results show that some atmospheric variables affect satisfaction levels of all consumers, yet others have differential effects on satisfaction based on consumer shopping orientation.
Mummalaneni (2005)	– Web-site Design – Web-site Ambiance	– Arousal – Pleasure	– Satisfaction – Loyalty (intentions) – Time Spend at the Web-site – Number of Items Purchased – Dollar Amount Spent	Web-site design and ambiance had positive effects on arousal and pleasure. With respect to behavioural outcomes, amount spent was not significant; however, loyalty, satisfaction and number of items purchased were all positively influenced by pleasure, while satisfaction and time spent online were both positively affected by arousal.
Oh, Fiorito, Cho and Hofacker (2008)	Store Atmosphere – *Store Front Design* – *Information Display*	Store Image – *Safety* – *Convenience* – *Entertainment*	– Merchandise Quality	Results support that store atmosphere has a positive effect on perceptions of merchandise quality through store image.
Wang, Baker, Wagner and Wakefield (2007)	– Social Cues	– Pleasure – Arousal – Flow – Hedonic Value – Utilitarian Value	– Patronage Intention	Social cues induce perceptions of web-site socialness, leading to increased pleasure and arousal, both of which positively influence flow, hedonic vale, utilitarian value, which in turn affect patronage intentions
Wang, Hernandez and Minor (2010)	Perceived Web Aesthetics – *Aesthetic Formality* – *Aesthetic Appeal*	– Satisfaction – Online Service Quality – Arousal	– Purchase – Re-purchase – Loyalty – Complaint – Service Switch	Although the full path from stimulus to response was presented, the empirical study focused only on the dynamics between the two dimensions of aesthetics and satisfaction and service quality. In particular, the research found that different combinations of aesthetic qualities influenced consumers' internal states to varying degrees.

Authors	Stimulus Variable(s)	Organism Variable(s)	Response Variable(s)	Major Findings
Wang, Minor and Wei (2010)	Perceived Web Aesthetics – *Aesthetic Formality* – *Aesthetic Appeal*	– Satisfaction – Arousal – Online Service Quality	– Purchase – Consultation (with Customer Service) – Search on other Web-sites – Re-Visit	Behavioural outcomes, were significantly evoked by aesthetic stimuli through cognitive and affective responses. Moreover, dissimilar effects on consumer response were found between the two dimensions of web aesthetics; particularly formality decreases arousal and increased both satisfaction and service quality, while appeal increased both arousal and service quality but decreased satisfaction.
Yun and Good (2007)	– E-merchandise – E-service – E-shopping Atmosphere	– E-tail store Image	– E-patronage Intentions – E-loyalty Behaviours	E-merchandise, e-service and e-shopping atmosphere are all associated with creating favourable e-tail store image which in turn influences e-patronage intention and e-loyalty behaviours.

Notes:
[a] Where a variable of interest in a study is a latent construct the observed variables for that construct are identified in italics.

2.7.2 Conceptualising Stimulus in the SOR Paradigm

Based on SOR theory, the stimulus is expected to possess qualities capable of engendering some organism response (Eroglu *et al.*, 2003; Mehrabian & Russell, 1974; Sherman *et al.*, 1997).

At the time of developing the SOR, Mehrabian and Russell (1974) argued that simple sensory dimensions, such as volume, colour, or temperature, are insufficient measures of stimulation for environmental settings where stimulation occurs for all the sense modalities simultaneously, and where spatial and temporal variations occur in each modality. As a result, and through the utilisation of information theory, the authors proposed a general measure of environmental stimulation which could be applied within diverse physical and social settings to describe the "load" of the environment. Mehrabian and Russell termed this measure the information rate of the environment, which reflected a single parsimonious measure of the level of stimulation provided by the environment and could be described along dimensions such as complexity, unity, diversity, congruity, artificiality, crowding, symmetry, novelty, and meaningfulness (Mehrabian & Russell, 1974).

In a distinct field of research, Berlyne (1960) offered insights supporting a parsimonious perspective on stimulation. According to Berlyne, a stimulus psychologist, all stimuli possess a common characteristic; that is the presence of arousal potential. According to Berlyne, arousal potential represents what he referred to as the psychological strength of a stimulus and reflects the capability of the stimulus to induce arousal. In advancing this view, Berlyne continued to examine stimuli and determined that all stimuli possess properties which contribute to the objects arousal potential. In particular, Berlyne (1960) posited three properties:

- Psychophysical properties – variables dependent on the physical and chemical characteristics of the stimulus.
- Ecological properties – variables associated with specific requirements for health and survival.
- Collative properties – variables activated only by comparison, the collation of various stimulus elements with each other or the collation of various stimulus elements with previous experiences.

Of the three properties, the collative property closely resembles the propositions put forth by Mehrabian and Russell (1974). Specifically, the collative properties cannot be defined by a single sensory dimension, and instead refer to the relations among sensory features or changes over time between sensory features. Based on this collative perspective of stimuli, Berlyne (1960), like Mehrabian and Russell (1974), contended that any stimulus could be described by the amount of information it provided. For example, a complex stimulus could be viewed as many pieces of information, whereas a simple stimulus could be viewed as just a few.

Within this information theory approach, researchers further identify that the desirability of stimuli is based on its information load (Berlyne, 1960). In particular, stimuli possessing an optimal level of information are assumed to be the most desirable, whereas stimuli deviating from this optimal level (i.e. stimuli providing higher or lower levels of information) are predicted to be less desirable (Raju, 1980; Steenkamp & Baumgartner, 1992).

Although this early research suggests environmental consequences are the result of a parsimonious perspective of the stimulus, the majority of studies utilising the SOR paradigm in online retail environments have instead examined the effects of specific stimuli (i.e. web-site attributes) on a variety of aspects related to consumer behaviour. For example, Wang *et al.* (2007) examined the impact of various social cues on consumer behaviour within an online retail setting. Similarly, Jang and Namkung (2009) investigated how product quality, atmospherics, and service quality affect web-site re-patronage intentions.

2.7.3 Conceptualising Consumer Response within the SOR paradigm

According to SOR theory, consumers respond to stimuli on two levels. The first is an internalised response, termed organism response, and the second is an externalised response, termed behavioural response.

2.7.3.1 Conceptualising Organism Response

Within the SOR paradigm, the organism response refers to any internal response to stimuli. These internal responses are essential in encouraging a behavioural response and are directed at changing the relationship between the organism and the stimulus object (Eroglu *et al.*, 2003; Mehrabian & Russell, 1974; Sweeney & Wyber, 2002).

Donovan and Rossiter (1982) suggest that an individual's response to a stimulus is mediated by their emotional reaction to it. Specifically, under this view, when facing a stimulus, an individual has an emotional reaction which pre-empts a certain behaviour. For example, excitement would encourage interaction with a stimulus (Kaltcheva & Weitz, 2006). Conversely, cognitive mediation theory suggests that an individual's response to a stimulus is mediated by the cognitive processing of the stimulus by the individual (e.g. see Chattaraman, Rudd, & Lennon, 2010). Under this view, how one responds to a stimulus is based on a rational evaluation of informational cues. For example, Johnson, Schofield and Yurchisin (2002) found that people's impressions of others are based on physical cues, such as dress and cleanliness.

These two opposing yet complementary views of organism response create a bi-lateral perspective to the organism response. Such a bi-lateral perspective of organism response has received support from a number of authors within the marketing literature. For example, Oh, Fiorito, Cho, and Hofacker (2008), suggest that a consumer's organism states can be reflective of affect (emotional states) and cognition (rational states). Similarly, Eroglu *et al.* (2001) argued that in online environments both affect and cognition act as intervening variables for consumer behaviour on the web, and Chang and Chen (2008) state that "the organism is represented by cognitive and affective intermediary states and processes that mediate the relationships between the stimulus and the individual's [behavioural] responses." (p. 820).

Utilising such a bi-lateral perspective does however highlight the issue of primacy. In fact, the bi-lateral perspective facilitates one of, perhaps, the most contentious issues in the consumer behaviour literature. Does affect or cognition, if either, lead the other?

Zajonc (1980; 1984) provided the first arguments suggesting that cognition is not required for emotion. Specifically, Zajonc noted that affective reactions can and do occur without extensive perceptual and cognitive encoding. Conversely, Lazarus (1982; 1984; 1991) outlined an appraisal theory of emotions, which posited that any emotion is based on the cognitive appraisal of a person-environment situation, where an individual compares an actual state with a desired state. Following the conflict, Berkowitz (1993) offered a third suggestion by presenting a three-step process model in relation to stimulus exposure. Specifically, Berkowitz (1993) suggested that responses followed an automatic, higher order cognitive, and then higher order affective process.

Although researchers have continued to put forth studies in support of either the primacy of cognition or the primacy of affect (e.g. Ethier, Hadaya, Talbot & Cadieux, 2006; Lin, 2004; Massara, Liu & Melara, 2010; Pham, Cohen, Wang *et al.*, 2007; Pracejus & Hughes, 2001), the state of affairs on the issue as purported by Lazarus (1999), and supported by Morris *et al.* (2002), still holds. Specifically, research still lacks appropriate paradigms and difficulties still remain in measuring variables that represent hypothetical constructs, as such the possibility of obtaining a consensus on the relationship between cognition and affect remains remote. Therefore, as with other phenomena with contradictory support (e.g. attitude and intention – see Kulviwat, Bruner, Nasco & Clark, 2007), rather than determining a single 'best fit' solution, academics should strive to identify, conceptualise, and support contexts in which the primacy of affect is superior to the primacy of cognition and contexts in which the primacy of affect is superior.

Affective Response

Within SOR-based research, the most frequently cited organism response is derived from the original Mehrabian and Russell model (1974). In their model, Mehrabian and Russell suggest that the organism response reflects the individual's emotional states. According to Mehrabian and Russell, all emotional reactions to an environment can be classified among three independent dimensions: pleasure, arousal, and dominance, herein referred to as PAD. Arousal-unarousal, refers to the degree to which an individual feels, excited, stimulated, alert or active in the situation; pleasure-displeasure refers to the degree to which an individual feels good, joyful, happy, or satisfied in the situation; and finally, dominance-submissiveness refers to the degree to which an individual feels control over or free to act in the situation.

After the seminal work of Mehrabian and Russell, subsequent research found that the dominance dimension held little predictive value (Donovan & Rossiter, 1982; Donovan, Rossiter, Marcoolyn, & Nesdale, 1994; Russell & Pratt, 1980; Sherman *et al.*, 1997). Furthermore, the remaining two dimensions were found to constitute a reliable two dimensional bi-polar model of emotion (Russell, 1979). Consequently, according to Russell, the emotional responses of an individual are composed of a certain proportion of pleasure and arousal. For example, excitement reflects moderate levels of pleasure and arousal, whereas distress reflects low levels of pleasure and high levels of arousal (Donovan & Rossiter, 1982).

Within the two-dimensional model, arousal and pleasure have been shown to be good predictors of customer behaviour in retail settings (Ang, Leong, & Lim,1997; Donovan & Rossiter, 1982; Menon & Kahn, 2002). Although proponents of Dominance continued to posit the importance of Dominance (see Mehrabian, 1997; Russell & Mehrabian, 1977; Shaver Schwartz, Kirson & O'Conner, 1987; Soriano & Foxall, 2006), based on the continued performance of the bi-polar pleasure and arousal paradigm, research has continued to exclude the dominance dimension from the PAD paradigm (e.g. Ridgway, Dawson, & Bloch, 1990).

In doing so, the application of the two-dimensions of emotion has been advanced. Specifically, Kaltcheva and Weitz (2006) argued, and supported, that the relationship between arousal and behaviour is mediated by pleasure, insomuch that in a pleasant environment, the greater the arousal, the greater the approach, and in an unpleasant environment, the greater the arousal, the greater the avoidance behaviour (Donovan & Rossiter, 1982; Kaltcheva & Weitz, 2006). Based on this research, behaviour within consumption environments reflects the degree of pleasure induced by the arousal from a stimulus, suggesting that the emotional dimensions have a dual mediating effect.

As an alternative to the Pleasure-Arousal model, some subsequent research has bypassed individual pleasure and arousal assessments to purport that a single emotional reaction (e.g. enjoyment, happiness, distress, or concern) satisfies the condition of organism response. Generally, most SOR studies with an affective organism response utilise the two-factor model of emotion prescribed by Russell and Pratt (1980).

There are however important additional considerations when investigating the emotional response in online retailing research; In dismissing dominance, Donovan & Rossiter (1982) suggest the variable is more cognitive and less emotional than the Mehrabian and Russell model requires stating:

> *"Our findings suggest a possible reconceptualization of the dominance variable in terms of the perceived...store atmosphere. However, this seems to make the variable more cognitive and less the purely emotional state that the M-R model requires"* (p. 55)

While acknowledging this characteristic of dominance for brick and mortar settings, some researchers continue to support the use of dominance within online retailing (e.g.

Eroglu *et al.*, 2001, Kulviwat *et al.*, 2007, Mazaheri *et al.*, 2011). Specifically, Kulviwat *et al.* (2007) suggests that the significance of the role of dominance depends on the scope of the setting. As the online environment has been defined as a cognitive landscape (Rosen & Purinton, 2004), characterised by high degrees of cognitive stimuli (Demangeot & Broderick, 2007), the application of dominance appears suitable (Eroglu *et al.*, 2001; Mazaheri *et al.*, 2011). Ethier *et al.* (2008) also support the use of dominance in environmental research within online environments, due to the increase in cognitive components compared to the brick and mortar setting. In summarising perspectives of dominance in environmental research, the role of dominance is expected to be more meaningful when the environment is constructed of greater cognitive components.

Cognitive Response

Similar to the emotional response, individuals also possess a cognitive response to stimuli which can influence behaviour (Bitner, 1992; Kaplan & Kaplan 1982; Sweeney & Wyber, 2002; Williams & Dargel, 2004).

In 1982, Kaplan and Kaplan applied cognitive appraisal theory to the complexities of the environment. Within their study, Kaplan and Kaplan suggested that the environment, acting as a stimulus, engenders behaviour based on rational needs to explore and understand. Based on Kaplan and Kaplan's study, environments which provide a desired level of exploration potential (i.e. desired levels of richness, involvement, information), yet are perceived to also provide the ability to understand (i.e. the ability to comprehend, maintain one's bearings, and understand what is going on in the environment) are positively appraised. According to Kaplan and Kaplan, environments which were positively appraised are preferred, and all things being equal, behaviours to enable the individual to interact within that environment take place.

Kaplan and Kaplan's notion of cognitively driven exploration is in part supported by the earlier work from Berlyne (1960). In his work on stimulation, Berlyne suggested that individuals were naturally curious about unfamiliar stimuli, and therefore the presentation of unfamiliar stimuli engenders exploration of the stimulus as a way to satisfy cognitive curiosity and the inherent need to derive meaning and categorisation for the unfamiliar stimuli.

While Kaplan and Kaplan's (1982) preference framework offers a comprehensive interpretation of consumer response, subsequent authors have shown that individual cognitive variables, such as service quality, value, and convenience are significant mediators of consumer behaviour toward stimuli. For example, Kim *et al.* (2007) found that online store perceptions mediated the relationship between image interactivity and patronage intentions in an online retail store. Similarly, Chang and Chen (2008) found that risk was a significant mediator in the relationship between environmental cues and purchase intention within an online retail store.

2.7.3.2 Conceptualising Behavioural Response within the SOR paradigm

Introduction to Behavioural Response

Based on SOR research, the behavioural response reflects the behaviour toward the stimulus engendered by the intervening organism response (Donovan & Rossiter, 1974; Eroglu *et al.*, 2001). In other words, the behavioural response reflects the final action toward a stimulus (Bagozzi, 1986) or the individual's expression toward the stimulus (Sherman *et al.*, 1997).

Although behavioural response should be engendered as an actual behaviour (Eroglu *et al.*, 2001; Mehrabian & Russell, 1974), numerous researchers have utilised the SOR paradigm with proxy measures for actual behaviour. One common use of the SOR paradigm has been to examine stimulus effects on attitudes and beliefs (e.g. Oh *et al.*, 2008; Sherman *et al.*, 1997). In these studies, attitude and beliefs follow the organism response and act as a proxy for behaviour as the overall outcome. For example, Oh *et al.* (2008) evaluate the effect of store atmosphere (stimuli) on merchandise quality (response) with store image as the intervening (organism) variable. Similarly, Sherman *et al.* (1997) assess store environment utilising an SOR paradigm however, alongside the traditional response measures such as time spent in store, the authors measure liking of the environment as a final response, with arousal and pleasure as mediating variables. Alternatively, researchers have measured willingness or intentions to behave as proxies for actual behaviour, based on the theory of planned behaviour (see Ajzen, 1985).

Theory of Planned Behaviour

Extending the theory of reasoned action (Ajzen, 1985), the theory of planned behaviour indicates that along with subjective social pressures (termed social norms) and perceived

control over the behaviour, attitude towards the behaviour influences an intention to act and such an intention to act is the precursor of actual behaviour (see Figure 2-2). Such a formulation has been supported in the literature as examinations of the model have shown behavioural intention to be a good predictor of actual behaviour (Canniere, De Pelsmacker & Genuens, 2010; Tett & Meyer, 1993).

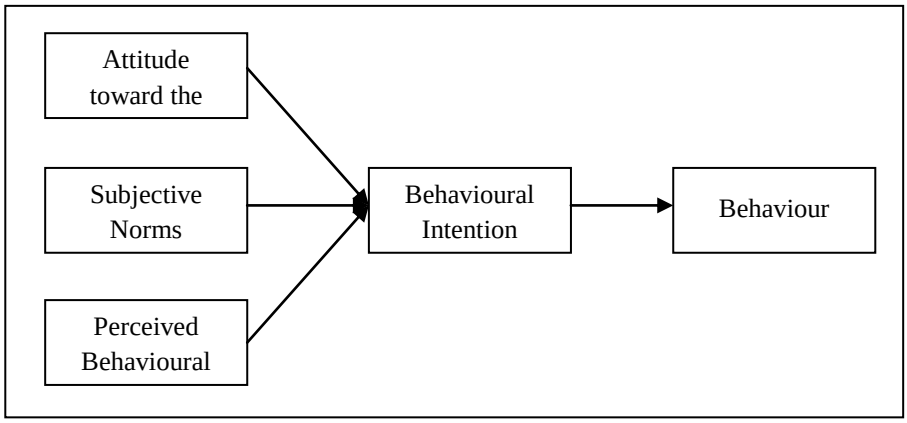

Figure 2-2 – Theory of Planned Behaviour

Approach and Avoidance

Taking SOR research from its original perspective, whereby response occurs as an actual behaviour (e.g. as purported by Mehrabian & Russell, 1974), response behaviours are generally viewed to occur in either one of two directions – approach or avoidance (Chang & Chen, 2008; Ridgway *et al.*, 1990; Sautter *et al.*, 2004; Spangenberg, Crowley & Henderson, 1996).

Approach and Avoidance was first discussed in 1905 by Wundt (as cited in Sherman *et al.*, 1997), who argued that behaviours due to mood and evaluations of the environment were best described as approach or avoidance. Generalising Donovan and Rossiter (1982), all behavioural responses toward an environment have four characteristics representative of approach or avoidance tendencies:

- a physical desire to stay in the presence of or remove oneself from the presence of the stimulus object;

- a willingness to dedicate resources to enhance the relationship between the organism and the stimulus object or a tendency to avoid interaction between the organism and stimulus object;

- a willingness to engage with other stimuli associated with the stimulus object or a tendency to avoid additional stimuli related to the stimulus object; and

- an elevation or reduction of personal satisfaction when engaged in stimulus-related task completion.

Approach Behaviours

Approach behaviours reflect all the positive behaviours directed toward a particular stimuli. Such behaviours show partiality toward the stimuli, such as a desire to stay in the presence of, explore, and affiliate with, the stimulus object (Eroglu *et al.*, 2001). Other suggestions have included purchase within the environment (Chang & Chen, 2008; Donovan & Rossiter, 1982; Wang *et al.*, 2010), amount of time spent in an environment (Donovan & Rossiter, 1982; Mummalaneni, 2005), as well as desire to stay in, or return to, the environment (Fiore *et al.*, 2005; Jeong, Fiore, Niehm, & Lorenz, 2009).

Avoidance Behaviours

Avoidance behaviours, on the other hand, are often conceptualised as those opposite in nature to approach behaviours (e.g. Sweeney & Wyber, 2002). Based on this, Ang *et al.* (1997) suggests that avoidance behaviours display a consumer's lack of interest or desire for the stimulus. Other interpretations have included no intention to revisit a stimulus object or reluctance to spend money with respect to the stimulus object (Spangenberg, Sprott, Grohmann & Tracy, 2006). Interpretations of avoidance behaviours, such as these, can be considered passive or preventative avoidance responses as the behaviour prevents interaction with the stimulus. In comparison, other interpretations have posited more aggressive or active avoidance behaviours, which actively remove the consumer from their interactions with the stimulus object. Examples of such aggressive avoidance behaviours include a desire to leave the presence of a stimulus object (Kim & Moon, 2009) or to actively isolate oneself from the stimulus by ignoring or failing to interact with a stimulus object (Milliman, 1986).

2.8 APPLYING THE SOR TO A CHANGE ENVIRONMENT

While the SOR framework is expected to hold in a wide range of settings (Donovan & Rossiter, 1982), there are some considerations in applying the SOR within a change environment. These considerations are discussed in the following sections.

2.8.1 Stimulus within a Change Environment

Within a change environment, the stimulus component of the SOR paradigm can reflect the consumer's perception of the change itself. Specifically, an environment which has undergone change should convey elements of newness – the degree of unfamiliar information presented in the environment, uncertainty – the expectation of interactions with unfamiliar information, surprise – the recognition of unfamiliar information, novelty – the recognition of why information is unfamiliar, and complexity – the amount of unfamiliar information. These dimensions are characteristic of Berlyne's (1960) collative properties and are indicative of an information laden setting; as such a change environment should provide significant stimulation.

2.8.2 Organism Response within a Change Environment

In line with the literature discussed previously, the organism response within a change environment is expected to be composed of both an affective and cognitive component. As discussed in Section 2.6.3.1, the emotional response in almost all situations can be reflected through the Mehrabian and Russell (1972) dimensions of emotion – Pleasure, Arousal and Dominance. Conversely, when applying the SOR paradigm to a change environment, a number of cognitive variables could have an intervening role on the behaviour evoked toward the stimulus. For example, intervening variables could include; perceived risk, preference for the change, congruity of change with retail image, perceptions of improvement, or value in the changed web-site.

2.8.3 Behavioural Response within a Change Environment

In applying the SOR to a change framework, retailers face the possibility of consumers exhibiting both approach or avoidance behaviours. Due to the anonymity and lack of social bonds in an online environment (e.g. Eroglu *et al.*, 2001; Lian & Lin, 2008), consumers can exhibit avoidance behaviours in the form of discontinued patronage, removal from customer databases or unsubscribing from retailer communications. In addition, similar to consumers in brick and mortar settings, individuals who felt bonds to

the retail web-site can enact aggressive avoidance behaviours such as negative word-of-mouth (e.g. Godes & Mayzlin, 2004).

However, retailers who engender approach behaviours through change could see re-patronage; increased time spent on web-site, and increased purchasing (Eroglu *et al.*, 2001; Mummalaneni, 2005). Additionally, approach behaviours online could lead to positive word-of-mouth and referrals for the retailer, as well as increased interaction with customer service support, participation in retailer's online discussion boards and communities, or membership to the retailer's page on social network sites (e.g. see Trusov, Bucklin & Pauwels, 2009).

2.9 CHAPTER SUMMARY

The purpose of this chapter was to provide the main literature review for this study. At the start of this chapter, an overview of online retailing was provided, in which the growth of online retailing was discussed alongside a review of consumer behaviour within the online retail context. Next, the concept of the retail web-site was examined, wherein the conceptualisation of the web-site as an environment was reviewed. After exploring the importance of the retail web-site within online retailing, change was reviewed, which included a review of change from marketing as well as non-marketing disciplines and the introduction of the focal variables for the study – task-relevant change and non-task-relevant change. Following this, a brief discussion of commercial web-site change was presented in which the lack of research in the area was identified along with the conceptualisation of web-site change as a change in the *online consumption environment*. Consequently, the SOR framework was introduced in the section following as a guiding theory for the exploration of consumer response. All three components of the SOR framework were discussed in detail before the considerations of applying the SOR framework to a change environment concluded this chapter.

The remaining chapters of this thesis are devoted to the development and empirical testing of a conceptual model for consumer response toward change in online retail environments. This model, a discussion of the dependence relationships posited, as well as the research hypotheses to be tested in this study are outlined in the next chapter.

3 CONCEPTUAL MODEL

3.1 INTRODUCTION

This chapter aims to present a discussion of the conceptual model that is examined in this study. To achieve this aim, the chapter begins with an introduction of the model itself. The sections which follow use literature relevant to the model constructs to present a discussion on each of the dependence relationships in the model. Based on these discussions, formal research hypotheses are presented.

3.2 PROPOSED CONCEPTUAL MODEL

Following the review of the literature in Chapter Two, a model encapsulating the hypothesised relationships between the change in an online retail environment, the emotional states of consumers, the degree of flow felt, the perceived shopping value, and web-site re-patronage is presented in Figure 3-1. Although the specific hypothesised relationships are to be discussed in detail further in the current chapter, the remainder of this section is dedicated to a brief overview of the model, specifically the development of a SOR paradigm.

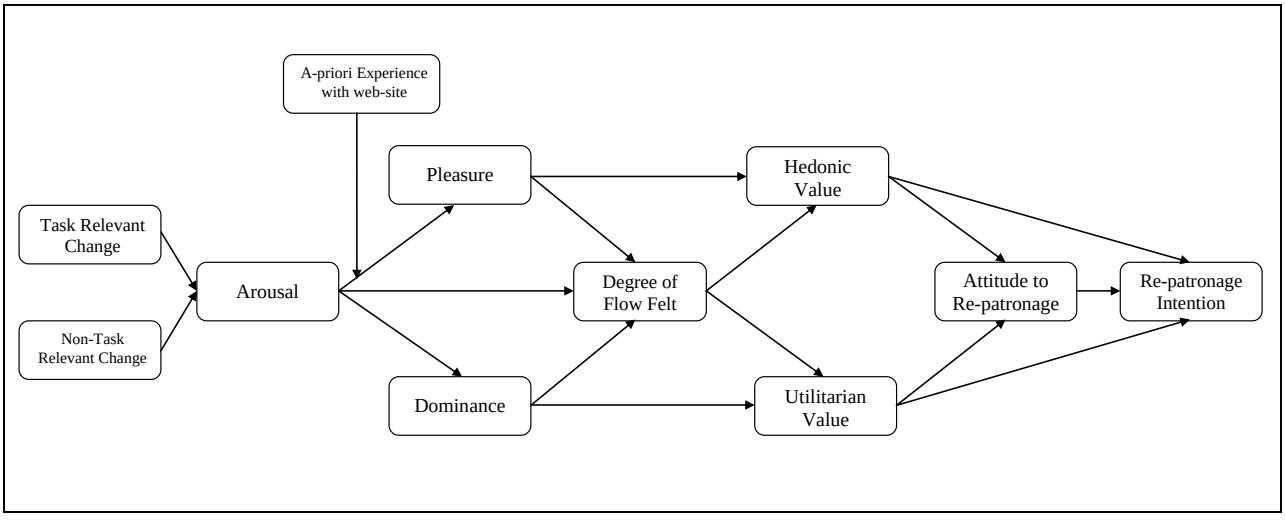

Figure 3-1 – Proposed Conceptual Model

3.2.1 Conceptual Paradigm

In applying the literature review presented in Chapter Two of this thesis, a modified Mehrabian and Russell (1974) model of environmental influences on behavioural responses is utilised in developing a model to investigate how consumers respond to a change to the online retail environment. Specifically, through utilising a SOR paradigm, the model purports that perceived change, a stimulus (S), leads to an intention of re-patronage, a behavioural response (R). However, this response is mediated by an organism response (O), which, for this research, is expected to encompass both affective and cognitive components; namely emotion, flow and value.

Based on this conceptual construction, a series of distinct dependence relationships can be predicted.

3.2.2 Dependence Relationships

Directly following exposure to a changed web-site, a consumer is expected to perceive a valence of noticeable difference (or change). This change is predicted to create an emotional response, through inducing arousal, which is hypothesised to influence pleasure and dominance. While arousal is predicted to decrease dominance, the effect of arousal on pleasure is expected to be influenced by the consumer's previous experiences with the web-based environment (a-priori experience). Subsequently, the emotional response variables (Arousal, Pleasure and Dominance) are predicted to influence the degree of flow felt, while the emotional response and feelings of flow are predicted to have direct effects on value perceptions, both hedonic and utilitarian. These value perceptions are expected to influence the acceptance of the web-site; particularly, attitude toward re-patronage and re-patronage intentions. Consumers' value perceptions, are predicted to affect how re-visits to the changed web-site (i.e. $Attitude_{Re\text{-}patronage}$) are viewed, which, alongside the value perceptions, is expected to finally form a re-patronage intention. In the remainder of this chapter a detailed discussion on each of these dependence relationships is presented alongside the formulation of the formal research hypotheses.

3.3 RESEARCH HYPOTHESES

3.3.1 Hypothesis One and Two – Change on Arousal

The first two hypotheses concern the relationships between change in the online environment and arousal. In particular, change in an online retail environment is expected to increase the information load of the environment. More specifically, because information load is reflective of novelty and complexity, changes to the environment are expected to increase both the complexity of the information provided by the environment by contradicting schema (see Brewer and Treyens, 1981), and the novelty of the information due to the newness of the changes relative to the existing environment (e.g. Berlyne, 1960). As arousal reflects the degree to which an individual feels excited stimulated, alert or active in the situation (Mehrabian and Russell, 1974), increases to the information load of the environment are expected to result in increased levels of perceived arousal due to the environment (Donovan and Rossiter, 1982; Kaltcheva and Weitz, 2006). Therefore, change within the task-relevant dimension of the web-site and change within the non-task-relevant dimension of the web-site (see Section 2.4.7.1) are both expected to increase the information load of the environment. As such, the following hypotheses state:

H_1: Task-relevant change has a positive effect on arousal.

H_2: Non-task-relevant change has a positive effect on arousal.

3.3.2 Hypotheses Three and Four – Arousal on Pleasure and Dominance

The second set of hypotheses examine the emotional response through the predicted relationships between arousal and pleasure, and arousal and dominance. Following on from Hypothesis One, this second set of hypotheses extend not only the existing application of the PAD paradigm but also the current belief in retailing that emotion is simply the degree of induced pleasure (e.g. Jang & Namkung, 2009).

Hypothesis Three – Arousal on Pleasure

Based on Kaltcheva and Weitz, (2006) and Massara *et al.* (2009), arousal is expected to influence the pleasure induced by the environment, but only when paired with a second moderating variable. Specifically, Massara *et al.* (2009) propose that pleasure is the outcome of a positive match between induced arousal and expected arousal, and required dominance and actual dominance. Similarly, Kaltcheva and Weitz (2006) found that the

relationship between arousal and pleasure is influenced by motivational orientation, as motivations influence desired levels of stimulation. Moreover, according to Kaltcheva and Weitz (2006) there should be more work on identifying moderators for the effects of arousal on pleasure.

In this research, the experiences with the web-site prior to change (a-priori experiences) are predicted to influence the relationship between arousal and pleasure. Specifically, positive previous experiences are expected to leave the consumer with positive views of the existing web-site in mental memory (schema). Consequently, the change to the status quo is expected to disrupt this image in a negative direction. Therefore, more positive previous experiences are expected to result in less pleasant arousal induced by change. Conversely, negative previous experiences are expected to leave the consumer with negative views of the existing web-site in mental memory (schema). Consequently, the change to the status quo is therefore expected to disrupt this image, but in a positive direction. Therefore, more negative previous experiences are expected to result in more pleasant arousal induced by change. Therefore, Hypothesis Three purports:

> *H_3: A-priori experience with the web-site moderates the relationship between arousal and pleasure in such a way that (a) arousal induced by a change is more pleasant for negative a-priori experiences; however (b) arousal induced by the change is less pleasant for positive a-priori experiences.*

Hypothesis Four – Arousal on Dominance

Arousal is expected to negatively affect dominance – the sense of one's freedom to act unrestricted in the environment. Particularly, as change in online environments is expected to contradict the consumers existing schema for the web-site (see Brewer and Treyens, 1981) consumers' familiarity with environmental information is expected to be reduced and their confidence in the outcomes of their behaviour is expected to be restricted creating an obstacle in conducting shopping tasks (Kaltcheva & Weitz, 2006; Mattila & Wirtz, 2008). Therefore, in the current study the consumer's perception of arousal is predicted to enhance the restrictions they feel over their interactions with the web-site. As such the following hypothesis states:

> *H_4: There is a negative relationship between the arousal induced by change and dominance.*

3.3.3 Hypotheses Five, Six and Seven – Emotional State on Flow

In the second stage of the model it is expected that emotion influences a consumer's psychological state. Specifically, in order for a consumer to become deeply engaged with a stimulus they must interact with a stimulus which (a) peaks their interest (arousal), (b) is a source of intrinsic enjoyment (pleasure), and (c) with which they feel free and capable to interact (dominance).

Hypothesis Five – Pleasure on Flow

Given its influence in previous flow research (e.g. Huang, 2006; Wang *et al.,* 2007), pleasure is expected to increase the degree of flow felt. Specifically, it seems unlikely that intrinsically rewarding states are entered if consumers face interactions with unpleasant stimuli. Furthermore, in-line with underlying principles from affect-based environmental psychology (e.g. Mehrabian & Russell, 1974), pleasure is expected to encourage approach behaviour, while displeasure is expected to encourage avoidance behaviour (see Arnold & Reynolds, 2009; Sweeney & Wyber, 2002). In-fact, Menon and Kahn (2002) found that the degree of pleasure induced by the environment increases exploration. Therefore, a pleasant source is expected to promote frequent interaction and engagement with a stimulus, and is likely to influence flow. As a result, Hypothesis Five purports:

H_5: There is a positive relationship between pleasure and the degree of flow felt.

Hypothesis Six – Arousal on Flow

Consistent with previous studies, arousal is expected to positively influence flow (e.g. Novak *et al.,* 2000; Wang *et al.,* 2007). These studies suggest that consumers with low arousal cannot enter a flow state because low arousal represents low stimulation and attention potential which fail to provide the heightened attention required for flow. Consequently, heightened levels of arousal are expected to positively influence flow. Therefore, arousal induced from a change environment is expected to increase flow, as predicted by Hypothesis Six:

H_6: There is a positive relationship between arousal and the degree of flow felt.

Hypothesis Seven – Dominance on Flow

Increased dominance is expected to positively influence the degree of flow consumers feel. Specifically, as dominance refers to the degree to which an individual feels unrestricted and free to move in an environment (Koufaris, 2002; Mehrabian & Russell, 1974), consumers are expected to become deeply engaged with a stimulus over which they feel they exert control (Luna *et al.*, 2002). Furthermore, dominance represents an inherent perception of requisite skill (a component of flow) (Luna *et al.*, 2002). In particular, the freedom to move unrestricted online denotes a perception of self-possessed navigation skill relative to perceived obstacles/challenges. Consequently, the greater the feeling of dominance induced by the environment, the greater the inherent perceived skill. Based on this discussion, dominance is expected to positively influence the degree of flow felt:

H_7: There is a positive relationship between dominance and the degree of flow felt.

3.3.4 Hypotheses Eight and Nine – Emotion on Value

In the third stage of the model it is expected that emotion influences consumers' value perceptions, classified as either functional (utilitarian) or emotional (hedonic) value. Specifically, as generalised by Babin and Darden (1995) positive emotions arising from exposure to specific stimuli are expected to positively influence the perceived value of interacting with the stimulus. Therefore, the following set of hypotheses deal with the influence of the PAD dimensions on value attributions.

Hypothesis Eight – Effect of Pleasure on Hedonic Value

As stated by Babin and Attaway, "all things considered, it is rather obvious that consumers would prefer to interact in a positive environment" (2000, p. 92). Specifically, pleasure induced by the environment is expected to have a direct effect on the hedonic value attributed to the environment as consumers are likely to find interactions within a pleasant environment emotionally rewarding (i.e. more enjoyable) (Wang *et al.*, 2007). As a result Hypothesis Eight purports:

H_8: There is a positive relationship between pleasure and hedonic value.

Hypothesis Nine – Effect of Dominance on Utilitarian Value

Given that dominance represents feeling "unrestricted or free to act in a variety of ways" (Mehrabian & Russell, 1974 p.19), it is expected that consumers who experience dominance will have greater confidence in their subsequent behaviour, lower cognitive resource consumption (i.e. from avoiding risk and uncertainty), and focus on navigation actions rather than navigation obstacles. Consequently, dominance is expected to increase the perceived ease of use (process) and perceived usefulness (outcome) of the technology (Agarwal & Karahanna, 2000) – components of utilitarian value. Therefore, as a result, consumers with a sense of control over their interactions are able to attribute greater functional worth to the web-site due to a perceptual ability to conduct and complete the shopping task. Thus, Hypothesis Nine purports:

H_9: There is a positive relationship between dominance and utilitarian value.

3.3.5 Hypotheses Ten and Eleven – Flow on Value

The fourth stage of the model purports that evaluations of hedonic and utilitarian performance are influenced by flow (e.g. Huang, 2003). Specifically, this research suggests that flow can positively influence the perceived value in the online environment through both the hedonic and utilitarian components.

Hypothesis Ten – Flow on Hedonic Value

Flow is expected to positively influence hedonic value (Senecal, Gharbi & Nantel, 2002). Specifically, as flow is a state of intrinsic enjoyment (Luna *et al.*, 2002; Novak *et al.*, 2000) interactions while in a flow state are expected to provide consumers with emotional value (Csikszentmihalyi, 1975; Fiore & Yu, 2001), by making the online experience rewarding without the necessity of information acquisition, product acquisition, or completion of tasks (Pace, 2004). Furthermore, because flow is the optimal state, it is expected that consumers experiencing feelings of flow will evaluate a level of hedonic value over and above the level experienced without flow. Therefore, Hypothesis Ten proposes that:

H_{10}: There is a positive relationship between flow and hedonic value.

Hypothesis Eleven – Flow on Utilitarian Value

Flow is also expected to influence utilitarian value. In particular, two distinct characteristics of flow are expected to lead to increases in utilitarian value. First, as flow states are characterised by a seamless sequence of responses (Novak and Hoffman, 1996), it is purported that flow will increase the evaluations of task efficiency and effectiveness (Koufaris, 2002; Wang *et al.*, 2007). Second, Agarwal and Karahanna (2000) found that because flow (which they termed cognitive absorption) is intrinsically rewarding, consumers who experience flow while using technology perceive less effort, greater usefulness, and increased ease-of-use. Therefore, Hypothesis Eleven purports:

H_{11}: There is a positive relationship between flow and utilitarian value.

3.3.6 Hypotheses Twelve, Thirteen, Fourteen and Fifteen – Re-acceptance.

As outlined in the conceptual model (Figure 3-1), the final phase of the consumer's response to change results in the development of a positive behavioural response. For this study, approach behaviour which reflects the 're-acceptance' of the web-site is of focal interest; namely, re-patronage.

Following the theory of reasoned action and the theory of planned behaviour (see Section 2.7.3.2 and Figure 2-2), re-acceptance is examined in this study through proxy measures of actual re-patronage behaviour using attitude toward the act and intention to act measures.

3.3.7 Hypotheses Twelve and Thirteen – Value on Attitude

General discussions from the attitude formation literature suggests that not only do value attributions positively influence attitude development (e.g. Koufaris, 2002), but that attitude formation can occur from both cognitive and affective states (e.g. Droge, 1989; Homer, 2006; Kim & Morris, 2007; Pasadeos, Phelps & Kim, 1998). In examining attitude formation in shopping environments, there is general support for these findings. For example, Chen *et al.* (2008) suggests that a consumer may develop a positive attitude toward a brand when they believe the shopping experience is pleasant, regardless of product or information acquisition. Additionally, according to Fiore *et al.* (2005), perceived enjoyment and control of the purchase decision process affect both hedonic and utilitarian components of attitude. Moreover, within their research, Childers, Carr, Peck, and Carson (2001), Monsuwe, Dellaert, and de Ruyter (2004) and Voss,

Spangenberg, and Grohman (2003) all suggest that a positive attitude is formed when utilitarian and hedonic motivations are satisfied. Therefore, it can be expected that attributions of value on either value component are likely to positively influence attitude toward re-patronage. As a result, Hypotheses Twelve and Thirteen propose that:

H_{12}: There is a positive relationship between utilitarian value and attitude toward re-patronage.

H_{13}: There is a positive relationship between hedonic value and attitude toward re-patronage.

3.3.8 Hypotheses Fourteen and Fifteen – Value on Intention

Consumers' behavioural intentions toward the online retail environment are expected to be influenced by their perceptions of value within the environment (i.e. quality of performance) (Agarwal & Karahanna, 2000; Stoel, Wickliffe & Lee, 2004). In information systems research, traditional technology acceptance theory suggests users' experiences with technology (e.g. ease of use) directly affect future intention (Szajna, 1996). Moreover, in marketing, previous studies have found that reactions to previous interactions influence consumers' future behaviour. For example, Menon and Kahn (2000) found greater pleasure at initial interactions resulted in greater exploration later in the shopping trip; Hoffman and Novak (1996) found that favourable experiences resulted in longer stays at, and increased visits to, web-based environments; and Fiore *et al.* (2005) found that both perceived enjoyment and control of the purchase decision process affect intention to return to the site. Therefore, based on the influence of previous experiences on future intention, positive attributions of value from the initial interaction after change are expected to increase re-patronage intentions. As such, Hypotheses Fourteen and Fifteen purport:

H_{14}: There is a positive relationship between utilitarian value and re-patronage intention.

H_{15}: There is a positive relationship between hedonic value and re-patronage intention.

3.3.9 Hypothesis Sixteen – Attitude on Intention

The final hypothesis outlined in the model presented in Figure 3-1 is concerned with the relationship between attitude toward the retailer and re-patronage intention.

Although several previous studies have been unable to find support for a relationship between attitude toward using and intention to use (e.g. Venkatesh, 1999; Venkatesh & Davis, 2000), others have found such a relationship to be significant (e.g. Spangenberg *et al.*, 2006). According to Kulviwat *et al.* (2007), this inconsistency requires researchers to clearly indentify the conditions under which the attitude-intention relationship is being examined. Leading by example, Kulviwat *et al.* (2007) identify that when examining attitudes formed from both cognitive and affective components, there is a stronger link between attitude and intention. Given attitude is hypothesised to be formed via both cognitive and affective components (see Section 3.3.7), this research adopts the view that attitude precedes intention (Bagozzi, 1981), and as such, a positive intention to return (re-patronage) is expected to be positively influenced by a positive attitude toward such re-patronage behaviour. Therefore, the final hypothesis predicts that:

> H_{16}: *There is a positive relationship between attitude toward re-patronage and re-patronage intention.*

3.4 COVARIATE VARIABLES

Along with the hypothesised relationships, the effects of five covariate variables are also examined in this research due to the predicted additional influence they could have on the dependent variables over and above the effects of the antecedent variables already discussed.

3.4.1 Desire for Change

The first of the five covariates is the consumer's desire for change. While a desire for change has not been examined in the extant literature, for the purposes of this research, the desire for change reflects the degree to which modification in the online environment is wanted, willed or longed for by consumers engaging within the environment. As a desire for change is an emotive variable (see Lynn and Harris, 1997), it is expected that desire for change influences how the arousal induced by the change influences the other PAD dimensions.

3.4.2 Enduring Involvement

The second of the five covariates is Involvement (e.g. Zaichkowsky, 1985; 1986). For the purpose of this study, enduring involvement with the retail category is of specific interest. Adopting the definition of involvement as "a person's perceived relevance of the object based on inherent needs, values, interests" (Zaichkowsky, 1985, p. 342), it is expected that involvement has an effect on how consumers respond to stimuli related to that retail category. In particular, as involvement influences the importance, diligence, time and effort the consumer associates with stimuli from the category (Zaichkowsky, 1985), it is expected that the arousal induced by a changed environment is a function of involvement with the retail category.

3.4.3 Optimal Stimulation Level

The third covariate is the optimal stimulation construct (e.g. Raju, 1980; Steenkamp & Baumgartner, 1992). Kish and Donnenwerth (1969) suggest a person with a high optimal stimulation level (OSL) is "one who has a stronger than average need to seek and approach situations, activities, and ideas which are novel, changing, complex, surprising, and more intense" (p.49). As highlighted in Chapter Two, OSL is the level at which the consumer has what they feel is an ideal level of stimulation. As such, further stimulation is perceived to be over stimulating and individuals withdraw from the stimulus, while any level of stimulation below the optimal level require individuals to exert additional effort to heighten stimulation. Therefore, the relationship between arousal induced by the change and the other PAD dimensions is expected to be influenced by OSL (over and above the effects predicted by a-priori experience).

3.4.4 Patronage Frequency

The fourth covariate is a measure of the consumer's patronage history with the retailer (e.g. Hess, Ganesan & Klein, 2003). For this study, the degree of historic interaction is referred to as patronage frequency and reflects the extent to which consumers visited the web-site prior to the change. Patronage frequency could have an impact on perceptions of arousal induced by change because frequent patronage can enable consumers to hold a schema (e.g. Marshall, 1995) or cognitive map (see Grossbart & Rommohan, 1981; Lee and Chung, 2006; MacKay & Olshavsky, 1975) of the retail web-site which includes more detail than those held by infrequent users. With more detailed cognitive maps, the degree to which change is noticed is likely to be enhanced. Therefore, it is likely that

consumers with frequent patronage of the old web-site will notice greater arousal induced by change than consumers with infrequent patronage.

3.4.5 Self-Efficacy

The fifth covariate is the consumer's belief in their ability to use the Internet – termed self-efficacy (e.g. Hill & Beatty, 2011; Wei & Zhang, 2008). According to Wei and Zhang (2008) Internet self-efficacy reflects a judgment about a user's ability to use the Internet. Meuter, Bitner, Ostrom and Brown (2005) define ability as the extent to which a person can do something as opposed to wanting to or knowing how to do something. Based on this conceptualisation, consumers with high self-efficacy strongly believe they possess the skills to navigate the web proficiently (Hill & Beatty, 2011). Therefore, it is expected that the way a consumer interacts with a stimulus is influenced by their self-efficacy (Novak *et al.*, 2000; Seltzer, 1983). More specifically, as with desire for change, it is expected that the self-efficacy of a consumer visiting a changed online environment influences how the arousal induced by the change influences the other PAD dimensions.

3.4.6 Socio-Demographic Variables

In addition to the five specific covariates outlined, the general influences of socio-demographic variables (gender, age, education, experience and expertise) on consumers' responses to web-site change is also examined. Previous studies have indicated that socio-demographic variables can influence internal responses and behaviour while online. For example, navigational behaviour has been found to significantly differ between males and females, with males engaging in less exploratory behaviour and women becoming more involved with the web-site (Richard *et al.*, 2010). Similarly, Teo (2001) found that online behaviours differ between males and females with females using the Internet with greater social-orientation (e.g. messaging) than males who reported greater function-orientation (such as purchasing and downloading), and Wang *et al.* (2007) found that females perceive online social stimulation to be of more intrinsic value than males. Additionally, Wang *et al*. (2007) identified that for older consumers, feelings of Flow are not related to pleasure, while this same group does not perceive the functional value of the web-site to be particularly important for web-site patronage when social cues are present. Finally, consumers' ethnicity and education have been shown to have significant, albeit minor, effects on the patronage of online auction web-sites

(Korgaonkar, Becerra, O'Leary, & Goldring, 2010), with the level preference for patronage for online auction sites varying by education and ethnicity.

3.5 CONTROL VARIABLES

In addition to the model constructs and covariates, one variable is identified to have a potential influence on the hypothesised relationships – motivational orientation. Although a consumer's motivational orientation is predicted to have a potential influence, it is not an observed variable of interest within the study. Therefore, to alleviate the potential influence of motivational orientation, its value is fixed across all experimental conditions, allowing any effect to be held constant throughout the experiment.

3.5.1 Motivational Orientation

Motivational orientation has been shown to have a significant influence on consumer behaviour in various settings (e.g. Close & Kukar-Kinney, 2010; Kaltcheva & Weitz, 2006; Wang *et al.*, 2007). Predominantly, findings suggest that shopping trip satisfaction is achieved when the environment offers an experience congruent with the consumer's motivation. Specifically, task-oriented consumers prefer a focused, structured environment that is congruent with information or object attainment (Babin *et al.*, 1994; Childers *et al.*, 2001), whereas browsing consumers prefer a less structured environment that satisfies needs beyond information or object attainment and cover aspects such as engagement, excitement, and adventure (Babin *et al.*, 1994; Childers *et al.*, 2001; Kaltcheva & Weitz 2006; Kim *et al.*, 2007; Mathwick *et al.*, 2001). As such, the motivational orientation held by a consumer could influence how they respond to the change in the online environment.

3.6 CHAPTER SUMMARY

The purpose of this chapter was to introduce the conceptual model and associated hypotheses to be tested in this research. After presenting the conceptual model, each of the predicted relationships were discussed alongside the presentation of each of the formal hypotheses. Building on these predicted relationships, the next chapter sets to outline the research approach taken within this study.

4 METHODOLOGY

4.1 INTRODUCTION

This chapter provides a comprehensive review of the research methodology used to test the hypothesised relationships described in Chapter Three. To this end, Chapter Four begins with an overview of the research design before discussing, in detail, the experimental design, focusing on the procedure for developing the research site and stimulus material. Following these sections, the questionnaire development is reviewed before a discussion on the experimental procedures undertaken in this research is presented. In the final section, the pre-test to the main data collection is overviewed, including the changes arising from the results of the pre-test.

4.2 RESEARCH DESIGN

As discussed in Chapter Two, the retail website is comprised of two broad environmental dimensions; namely those attributes which relate to the task or functions of the website, and those related to the aesthetic design of the web-site. Subsequently, change in the online retail environment was conceptualised along these two dimensions into task-relevant change and non-task-relevant change. Utilising these two dimensions, the effect of change on consumer response is examined utilising a factorial experimental design.

In addition, as it is predicted that prior experiences have an intervening effect on how consumers respond to change, the effects of a-priori experience as a moderating variable are also examined.

4.3 EXPERIMENTAL DESIGN

For the purpose of this study, a 2 x 2 between-subjects factorial design was used, where two levels of task-relevant change (low and high) and two levels of non-task-relevant change (low and high) were manipulated as independent variables to provide four unique change conditions (see Table 4-1).

Table 4-1 - Change Conditions (Task-Relevant Change by Non-Task-Relevant Change)

Task-Relevant Change	**Non-Task-Relevant Change**	
	Low	*High*
Low	Minor Change	Aesthetic Change
High	Task Change	Major Change

4.4 STIMULUS MATERIAL

4.4.1 Selection of Web-based Retailer

The selection of a suitable online retailer was central to the design of the experiment. On the basis of typicality and industry standards some industries offered a more suitable context for the design of the research stimuli. Therefore, the first stage in selecting an individual business was to select an appropriate industry. Following a review of the structure, design, and implementation of typical industry web-based environments; online retail banking was ultimately selected.

Institutionalised into society (see Dacin & Goodstein, 2002; Scott, 1987), banking, as an industry, is characterised by a large and dedicated group of frequent users. Furthermore, the banking industry was an early adopter of web-based technologies with a high subsequent adoption rate by end users (Deustche Bank Research, 2010). As a result, online banking suitably satisfies two key requirements for this research – size of the potential sample and user familiarity with the existing web environment.

Additionally, online banking is positioned as a tool to enable consumers to complete banking tasks with convenience (Tan & Teo, 2000), as such user interactions with banking web-sites are relatively goal-driven (Celik, 2008). Therefore, online banking environments provide a certain level of organic control over motivational orientation and provide the third desirable characteristic – reduced situational complexity derived from a duopoly of usage motivations as found in alternate contexts, such as online electronics retailers (Monsuwe *et al.*, 2004).

Finally, online banking allows access to active users with a variety of previous experiences – both positive and negative. In particular, for most users, the web-site is only one component of the total service offering provided by a bank. While negative experiences are likely to encourage switching in many instances, the online component of the total banking offer is not the core service provided. As such, consumers' switching

decisions are unlikely to rest solely on the performance of the online banking environment. Therefore, an online banking context satisfies the last desirable characteristic – the potential for a strong mix of a-priori experiences to be held within the sample.

4.4.1.1 Procedure for Selecting an Individual Stimulus Bank

In selecting a specific bank the design, frequency of use, and length of service for the current web-site were considered:

New Zealand has 20 registered banks (Reserve Bank of New Zealand, 2011), of those, the personal banking sites of four were identified to be high usage through rankings from Experian Hitwise, a provider of regional (New Zealand) Internet usage data and statistics. Average rankings for the banks were extracted from the *Top New Zealand Web-sites – All Categories* list published on the Hitwise web-site over an eight week period (see Table 4-2). The Hitwise list identifies the top twenty most visited New Zealand based (i.e. '.nz') web-sites. As the Hitwise rankings were considered a suitable indicator of usage, only the four identified banks were further considered.

Table 4-2 - Average Weekly Usage Rankings for NZ Banks from Hitwise

(Top Twenty - 21/11/2010 to 21/09/2010)

Bank Brand	URL	Rank[a]	% of Visitors[b]	Number of Visits[c]
ASB	https://fnc.asbbank.co.nz	10	1.34%	43,148
Westpac	https://sec.westpac.co.nz	11	1.08%	34,776
The National Bank	https://secure.nbnz.co.nz	13	0.89%	28,658
Kiwibank	https://www.ib.kiwibank.co.nz/	19	0.68%	21,896

[a] Average rank over eight week observation.

[b] Average percentage of visitors over eight week observation.

[c] Estimated. Based on a daily average survey of 460,000 users over a seven-day period (460000 x 7 x 1.34% = 43,148)

Of the four high-use banks, ASB and The National Bank had both undergone a significant re-launch within the twelve months prior so were subsequently removed from consideration. Of the remaining two banks, the Westpac web-site had a considerable term of service while Kiwibank was a relative newcomer to the market. As a result Kiwibank utilised modern technologies and design, hindering possible change manipulations.

Consequently, Westpac was selected as the most suitable foundation for engendering the experimental manipulations.

4.4.2 Developing a Source Web-site

In order to develop the four experimental conditions, a source web-site was first created as a direct facsimile of the existing Westpac web-site. To create the source web-site, a copy of the online web-site was 'captured' and stored on a local (offline) computer using web-site capturing software.

4.4.2.1 Considerations for the Source Web-site

As part of the development of the experimental conditions, three considerations arose in ensuring the source web-site represented a strong basis for the development of the experimental conditions.

First, while the focus in developing the experimental web-sites was engendering change, consistency in the attributes beyond those varied in the manipulations was a vital consideration. As such, the information available and the task capabilities of the web-site were controlled in all four experimental web-sites and remained consistent with the source web-site. Therefore, changes to the task-relevant dimension were limited to how users interacted with the web-site in order to conduct tasks, as opposed to changes in the task capabilities themselves.

Further, ethical considerations for the experimental web-sites limited functionality. In particular, to protect user security and privacy, many functions of the web-site could not be completed, such as password changes, application forms, or the like. As a result, functionality was limited to navigation of the web-site and interactivity with individual web-site elements.

Finally, to provide participants with an experience of using the changed web-site, yet limit the size of the source web-site for the manipulations, navigation beyond second level hierarchies was restricted. Consequently, unique individual pages located further than two links (clicks/steps) from the index page were not replicated in the source web-site (see Figure 4-1). However, the pages located further than two links from the index page were primarily specialist pages (e.g. loan applications) that required a degree of

functionality, which, as described previously, was restricted in light of ethical considerations. Consequently, the web-pages other than the specialist actions pages were, on the whole, encompassed within the two-link constraint.

All hyperlink locations which were not reachable were replaced by a 'broken link' error page, stating "*we were unable to process your last request. Please try again later.*" to convey an image of a complete website. Similarly, user engagement in a specialist task (e.g. password change) prompted a message box stating "*for the purpose of this research, the action is unavailable*". Directly following this a one sentence description of the result of the task had the web-site been fully operational was also provided.

4.4.2.2 The Source Web-site

Ultimately the source web-site used as the basis for the experimental manipulations consisted of 17 pages (see Table 4-3 and Appendix One). In lieu of describing the relationships between individual pages a structure chart of the overall web-site is presented in Figure 4-1.

Table 4-3 - Page Descriptions for Source Web-site Pages

Page Name	Description
Westpac Homepage	A homepage for the Westpac Personal Banking pages.
Account Balances	A repeat of the homepage with account balances.
Transaction Lists	A page for displaying a list of transactions between user specified dates.
Download Transactions	A page for downloading/exporting bank statements.
Statement Stopper	A page for requesting to discontinue receiving paper statements.
Account Nicknames	A page for setting or changing the names displayed for personal banking accounts on the Westpac online.
Terms & Conditions	A page outlining the terms and conditions of using the Westpac Personal Banking web-site.
Transfer Money/Pay Anyone	A page listing a number of different payment options, such as automatic payments and bill payments.
Transfer Money	A page for transferring money between the user's personal banking accounts.
Email & Txt Alerts	A page to set up email and txt alerts for banking messages.
Name Preferences	A page to set up login name and email preferences.
Mobile Banking	A page to register for mobile banking.
Security Preferences	A page describing the security features of the Westpac web-site.
I want a...	A page briefly describing the options for opening a new bank account, applying for a Visaplus Debit card, or setting up a new term investment.
New Banking Account	A page describing the process for opening a new account.
New Debitplus Visa Card	A page describing the process for applying for a new Visaplus Debit card
New Term Investments	A page describing the process for applying for term investments.

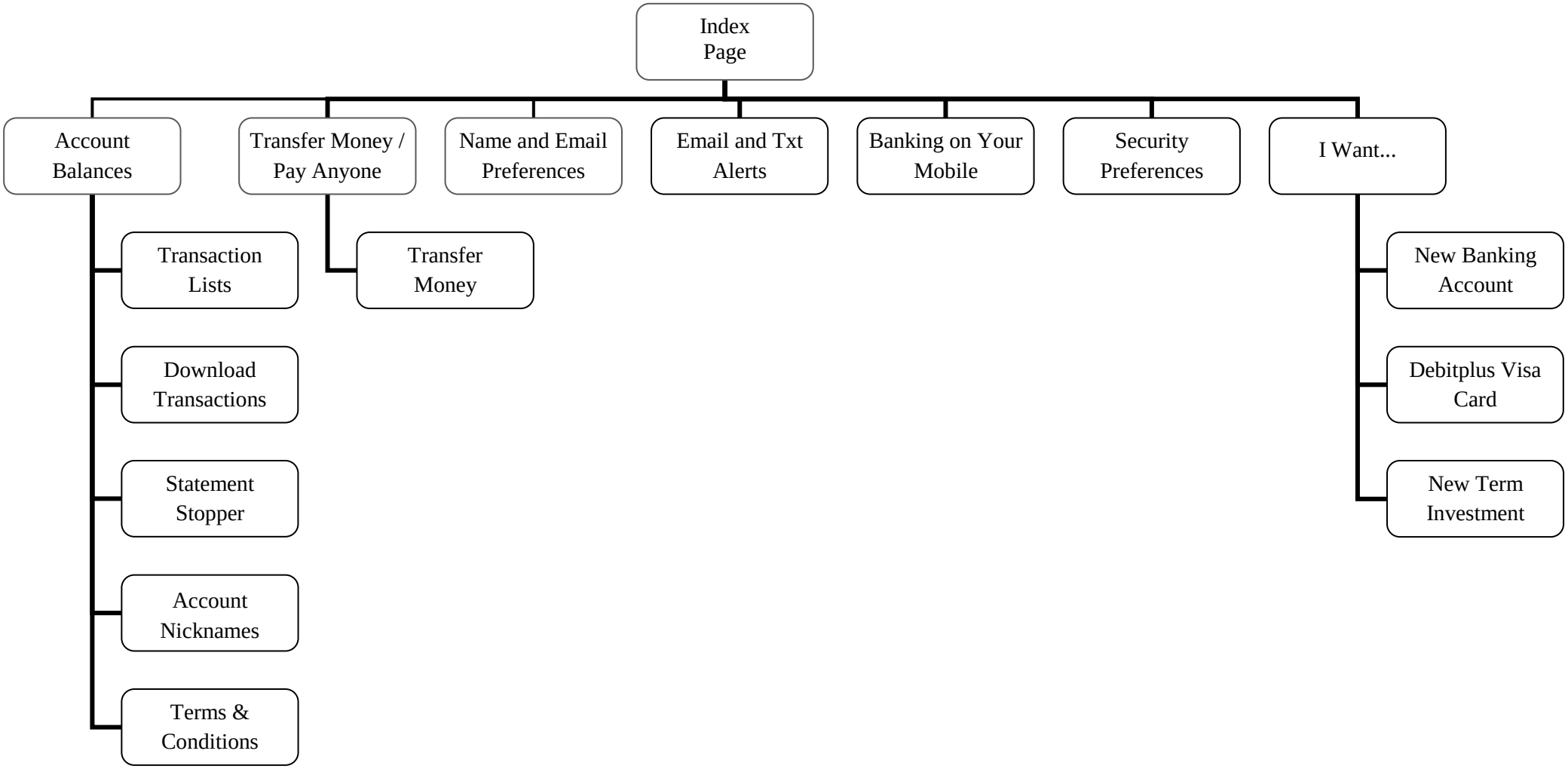

Figure 4-1 – Structure Chart of Source Web-site Structure

4.4.3 Developing the Experimental Online Environments

To engender the four change conditions indentified in Table 4-1, four facsimile web-sites were developed as adaptations of the source web-site. Each of the four facsimile web-sites was methodically manipulated to engender change through variations to select attributes (termed attribute variations) in the task-relevant or non-task-relevant dimensions of the source website. The procedure used for manipulating change is discussed in the following sections.

4.4.3.1 Determining Levels of Change

The experimental web-sites used in this study were designed to display two levels of both task-relevant and non-task-relevant change. Consistent with convention from previous information research, the levels of change were manipulated by varying the number of individual attribute variations within each web-site dimension (e.g. Wilkie, 1974; Lee & Lee, 2004). Subsequently, in the low conditions, the web-site had two attribute variations; while in the high conditions eight attribute variations were manipulated (including the two attribute variations from the low condition). These are summarised in Table 4-4.

Table 4-4 - Summary of Attributes and Conditions

	Task-Relevant		**Non-Task-Relevant**	
Condition	**Low**	**High**	**Low**	**High**
One	2		2	
Two	2			8
Three		8	2	
Four		8		8

4.4.3.2 Classification of Attribute Variations into Change Dimensions

Utilising the definitions for task-relevant and non-task-relevant change identified in Chapter Two (see Section 2.4.7), attribute variations were classified as either task-relevant or non-task-relevant. Where available, the prior classification within existing literature was considered, however all attribute variations were ultimately classified through appropriate definitional fit.

As a total of eight attribute variations were utilised for the manipulation of each change dimension, a total of 16 unique attribute variations resulted for the entire experiment. Table 4-5 presents the attribute variations utilised within each change dimension.

Table 4-5 - Task-Relevant and Non-Task-Relevant Attribute Variations Used in Change Manipulations

Task-Relevant Change	Non-Task-Relevant Change
Navigation Bar Content	Welcome Message
Structure	Table Style
Navigation Bar Location	Heading Style
Merging Common Tasks	Body Style
Tasks (Sidebar)	Images and Icons
Drop Down Navigation	Background
Task Related Headings	Navigation Bar Interactivity
Expanding Content	Current Time

4.4.3.3 Manipulating the Change

Although no approach for manipulating change exists in the extant literature, observing commercial web-site change (e.g. Mighty Ape, Facebook, Google) can provide some guidance. Specifically, based on the similarities observed in commercial web-site changes, change is commonly elicited through both the modification of existing attributes in the online environment as well as the addition of new attributes to the online environment. Therefore, the current research adopts this approach in manipulating change by modifying existing attributes in the online environment and adding new attributes to the online environment.

Modification of Existing Environmental Attributes

Modification of existing attributes herein refers to the variation in the state (form or function) of an existing attribute within the online environment, such as font size or colour, structure of the website, or content of navigation menus. A special instance of modification within the online environment is the removal of existing attributes (i.e. giving the attribute a zero state). Possible examples include imagery, background colours, or borders which have become obsolete, unnecessary or inconsistent with current branding strategies.

Additional Environmental Attributes

The addition of new attributes to the web environment refers to the incorporation of attributes not previously utilised in the environment. Under this definition the measurement of newness is determined based on the attributes in the existing retail environment. Therefore, similar to issues discussed within innovation (see Section 2.4.3) and consistent with discussion by Berlyne (1960), the addition of new attributes in an online environment can involve attributes which are new for a specific online environment yet are not necessarily new to online environments in general. Examples could include discussion boards or interactive imagery.

4.4.4 The Change Conditions – Four Unique Experimental Online Environments

Through systematically manipulating the different levels of task-relevant and non-task-relevant change, four unique experimental web-sites were developed representing the four change conditions. Each of the four conditions is detailed below:

1. *Minor Change: Low Task-Relevant and Low Non-Task-Relevant change.*

The Low Change manipulation reflected low levels of both task-relevant and non-task-relevant change. Therefore, one attribute was added and one attribute was modified in each of the task and non-task-relevant components of the web-site (see Table 4-6 and Appendix Two).

Table 4-6 - Summary of Attributes for 'Low Change' Manipulation

Attribute Type	Task-Relevant	Non-Task-Relevant
Modification	Navigation Bar Content	Welcome Message
Addition	Tasks (Sidebar)	Images and Icons

2. *Aesthetic Change: Low Task-Relevant and High Non-Task-Relevant change.*

The Aesthetic Change manipulation reflected a combination of low task-relevant change and high non-task-relevant change. Therefore, in addition to the one attribute added and the one attribute modified in the task-relevant component of the web-site, four attributes were added and four attributes were modified in the non-task-relevant component. This

created a total of eight non-task-relevant variations and two task-relevant variations (see Table 4-7 and Appendix Three).

Table 4-7 - Summary of Attributes for 'Aesthetic Change' Manipulation

Attribute Type	Task-relevant	Non-Task-relevant
Modification	Navigation Bar Content	Welcome Message
		Table Style
		Heading Style
		Body Style
Addition	Tasks (Sidebar)	Images and Icons
		Background
		Password Information
		Current Time

3. Task Change: High Task-Relevant and Low Non-Task-Relevant change.

The Task Change manipulation reflected a high level of task-relevant change and a low level of non-task-relevant change. Therefore, in addition to the one attribute added and the one attribute modified in the non-task-relevant component of the web-site, four attributes were added and four attributes were modified in the task-relevant component. This created a total of eight task-relevant variations and two non-task-relevant variations (see Table 4-8 and Appendix Four).

Table 4-8 - Summary of Attributes for 'Task Change' Manipulation

Attribute Type	Task-relevant	Non-Task-relevant
Modification	Navigation Bar Content	Welcome Message
	Structure	
	Navigation Bar Location	
	Merging Common Tasks	
Addition	Tasks (Sidebar)	Images and Icons
	Drop Down Navigation	
	Task Related Headings	
	Expanding Content	

4. Full Change: High Task-Relevant and High Non-Task-Relevant change.

Full change reflected high levels of both task-relevant change and non-task-relevant change. Therefore, the eight task-relevant variations manipulated for the aesthetic change condition and the eight non-task-relevant variations manipulated for the task change condition were combined into the full change condition comprising all 16 distinct variations (see Table 4-9 and Appendix Five).

Table 4-9 - Summary of Attributes for 'Full Change' Manipulation

Attribute Type	Task-relevant	Non-Task-relevant
Modification	Navigation Bar Content	Welcome Message
	Structure	Table Style
	Navigation Bar Location	Heading Style
	Merging Common Tasks	Body Style
Addition	Tasks (Sidebar)	Images and Icons
	Drop Down Navigation	Background
	Task Related Headings	Password Information
	Expanding Content	Current Time

The allocation of change attributes to experimental conditions is summarised in Table 4-10.

Table 4-10 - Summary of Change Conditions

Typology	Minor Change	Aesthetic Change	Task Change	Full Change
Task-Relevant Attributes				
Navigation Bar Content	✓	✓	✓	✓
Tasks (Sidebar)	✓	✓	✓	✓
Dropdown Navigation			✓	✓
Expanding Content			✓	✓
Merging Common Tasks			✓	✓
Navigation Bar Location			✓	✓
Structure			✓	✓
Task Related Headings			✓	✓
Non-Task-Relevant Attributes				
Images & Icons	✓	✓	✓	✓
Welcome Message	✓	✓	✓	✓
Background		✓		✓
Body Style		✓		✓
Current Time		✓		✓
Header Style		✓		✓
Navigation Bar Interaction		✓		✓
Table Style		✓		✓
Total Number of Number of Variations				
Task Relevant Variations	2	2	8	8
Non-Task-Relevant Variations	2	8	2	8

4.5 QUESTIONNAIRE DEVELOPMENT

4.5.1 Independent Measures (Manipulation Checks) – Change

Perception of Task-Relevant Change

Due to the lack of relevant measures in the extant literature, an eight-item scale was created to measure the effectiveness of the task-relevant change manipulation. As no relevant scales were available in the existing literature, key themes and descriptors from seminal literature by Eroglu *et al.* (2001) and Eroglu *et al.* (2003), as well as subsequent citing sources (e.g. Dailey, 2004; Demangeot & Broderick, 2010) were adapted for use as items in the scale. The items for the Task-Relevant Change scale were anchored from strongly disagree to strongly agree on a seven point scale. The exact wording of the eight Likert type items can be found in Table 4-11.

Table 4-11 - Scale Items for Task-Relevant Change

Coding	*Likert Items*
TR1	What I needed to do to complete my tasks was very different.
TR2	How I used the web-site was very different.
TR3	The way I used the web-site was very different.
TR4	The web-site was very different with respect to the parts used to complete tasks.
TR5	There was no difference in the way I had to go about completing tasks. (r)
TR6	The parts of the web-site I interacted with to complete my tasks were very different.
TR7	The way I was able to use the web-site had many changes.
TR8	There was no change in the task relevant cues. (r)

Perception of Non-Task-Relevant Change

A five-item scale was created to measure the effectiveness of the non-task-relevant change manipulation. As no relevant scales were available in the existing literature, similar to the Task-Relevant Change scale, items were created using key themes and descriptors presented in Eroglu *et al.* (2001), Eroglu *et al.* (2003), and subsequent citing sources (e.g. Davis *et al.*, 2008; Hausman & Siekpe, 2009). As with the Task-Relevant Change scale, the items were anchored from strongly disagree to strongly agree on a seven point scale. The exact wording of the five Likert items is presented in Table 4-12.

Table 4-12 - Scale Items for Non-Task-Relevant Change

Coding	*Likert Items*
NT1	The look of the web-site was very different.
NT2	The aesthetic design of the web-site seemed very different.
NT3	The website looked very stale. (r)
NT4	The style of the web-site was very familiar. (r)
NT5	The presentation of the web-site was very different.

4.6 Moderating Measure – A-priori Experience

In Chapter Three, a users previous (a-priori) experience was identified as a consideration of any change model. In particular, for the current research a-priori experience was predicted to moderate the effects of arousal induced by change on the degree of pleasure in the environment. Specifically, positive a-priori experiences reduced the pleasure in the environment, while negative a-priori experiences increased pleasure in the environment. In order to measure a-priori experience, an attitude toward the web-site measure was adopted. Given attitudes form following experiences with an object and drive future

behaviour toward that object (e.g. Azjen, 1989; 1991; 2001), it appears appropriate to utilise such a measure for the current research.

Although numerous scales exist for measuring attitude toward the web-site, many have a focus on specific components, such as informational quality, affective quality, visual appeal, or trust (see Bruner, 2009). Others, however, apply a holistic perspective to measure consumers' attitudes toward the web-site at a general level (e.g. Chen & Wells, 1999; Coyle & Thornson, 2001). Of these general scales, this research adopts the complete Stevenson, Bruner, and Kumar (2000) Attitude toward the Web-site scale in its original form due to its ease of application and robust reliability scores in previous research (α = .93 – Stevenson *et al.*, 2000; α = .97 – Bruner & Kumar, 2000). As with the original scale, the Attitude toward the Web-site scale was anchored strongly disagree to strongly agree on a seven point scale. The three semantic differential items from the Stevenson *et al.* (2000) scale are presented in Table 4-13.

Table 4-13 - Scale Items for Attitude toward the Web-site

	Likert Items
AW1	I like this web-site.
AW2	I think this web-site is a good web-site.
AW3	I think it is a nice web-site.

4.6.1 Pleasure, Arousal, and Dominance

To measure the emotional state of consumers, this research adopts Mehrabian and Russell's (1974) Pleasure, Arousal, and Dominance scales. In the next sections these scales are discussed.

Pleasure

Over many years there has been considerable continuity in the application of the scale developed by Mehrabian and Russell (1974) to measure Pleasure (e.g. Havlena & Holbrook, 1986; Mattila & Wirtz, 2001; Simpson, Horton & Brown, 1996). Although, subsequent authors have argued for a reduced set of items to measure Pleasure (e.g. Howard & Gengler, 2001; Hui & Tse, 1996), these reduced sets generally occur when an original item conflicts with another variable (e.g. Ladhari, 2007; Lee, Lee, Lee & Babin, 2008), however when no conflict exists the full set is adopted (e.g. Mitchell, Kahn & Knasko, 1995; Morrin & Ratneshwar, 2003). Consequently, in general, support for the

full set of six items has continued to be strong. Based on such research and no validity concerns with the items to warrant a reduced set in the current research, the complete six-item scale was adopted. As with the original 1974 version, the semantic differential items were anchored on a nine-point scale. The semantic differential items for Pleasure are presented in Table 4-14.

Arousal

Arousal was measured using the original six semantic differential items developed by Mehrabian and Russell (1974). As with the Pleasure scale, the original Arousal scale has been applied with considerable continuity (e.g. Fiore *et al.*, 2005; Havlena & Holbrook, 1986; Menon & Kahn 1995; Morrin & Ratneshwar, 2003; Shapiro, MacInnis & Park, 2002; Wirtz, Matilla & Tan, 2000). Therefore, along with strong reliability in previous research (e.g. $\alpha = .83$ – Holbrook *et al.*, 1984; $\alpha = .96$ – Simpson *et al.*,1996) the original scale was adopted in its entirety. As with the treatment of the original 1974 version, the items in the current study were weighted on a nine-point semantic scale. The semantic differential items for Arousal are presented in Table 4-15.

Dominance

Although Dominance has been excluded from many studies since the Mehrabian and Russell (1974) study, the studies that have continued to support the use of Dominance have applied the full set of items from the original Mehrabian and Russell (1974) scale (e.g. Foxall & Yani-de-Soriano, 2005; Kulviwat *et al.*, 2007; Lunardo & Mbengue, 2009). To this end, due to the application of the original scale in previous research and appropriate item validity for the current study, Dominance was measured using the original six semantic differential items developed by Mehrabian and Russell (1974). As with the original version, and in line with Arousal and Pleasure, the items were measured on a nine-point scale. The semantic differential items for Dominance are presented in Table 4-16.

Table 4-14 - Scale Items for Pleasure

Coding	*Semantic Differentials*
EP1	happy / unhappy
EP2	pleased / annoyed
EP3	satisfied / unsatisfied
EP4	contented / melancholic
EP5	hopeful / despairing
EP6	relaxed / bored

Table 4-15 - Scale Items for Arousal

Coding	*Semantic Differentials*
EA1	stimulated / relaxed
EA2	excited / calm
EA3	frenzied / sluggish
EA4	jittery / dull
EA5	wide-awake / sleepy
EA6	aroused / unaroused

Table 4-16 - Scale Items for Dominance

Coding	*Semantic Differentials*
ED1	controlling / controlled
ED2	influential / influenced
ED3	in control / cared for
ED4	important / awed
ED5	dominant / submissive
ED6	autonomous / guided

4.6.2 Degree of Flow Felt

In Chapter Three, Flow was hypothesised to be an outcome of the emotional dimensions (see Section 3.3.3). However, with respect to the measurement of Flow, although previous research offers numerous models for measuring the Flow construct, there is little continuity to suggest an accepted measurement model. Consequently, Flow has been described as an elusive construct with significant variability in the models representing its structure (Choi, Kim & Kim, 2007; Hoffman & Novak, 2009).

In a review of Flow research, Hoffman and Novak (2009) broadly categorise the numerous flow measurement models into two general categories, namely unidimensional models and multidimensional models. Unidimensional models operationalise Flow into a single observed variable. For example, the direct report method asks respondents about their Flow experiences (e.g. Hsu & Liu, 2003; Luna *et al.*, 2002; Sicilia, Ruiz, & Munuera,

2005) and the derived report method aggregates constituent constructs related to Flow into an overall Flow measure (e.g. Jiang & Benbasat, 2005; Senecal *et al.*, 2002). In contrast, multidimensional models operationalise Flow as a construct developed from a number of indicator variables (e.g. Bridges & Florsheim, 2008; Wang *et al.*, 2007).

For this research, Flow was operationalised as a derived unidimensional construct composed of constituent variables based on common elements identified from previous research. In particular, Attention, Curiosity, Control and Interest.

Attention, Curiosity, Control, and Interest were measured using items adapted from Webster, Trevino and Ryan (1993). Similar to the application of the scale items in Wang *et al.* (2007), the structure of the scale remained consistent by adopting the complete list of twelve Likert-type items; however, formative changes to the wording of the items were required to acknowledge the shift in context to an online retail environment as well as the shift in focus to measuring *felt* states as opposed to actual states. Each of the four scales was anchored from strongly disagree to strongly agree on a seven-point scale. The exact wording of the twelve Likert items is presented in Table 4-17.

Table 4-17 - Scale Items for Degree of Flow Felt Constituents

Coding	***Likert Items***
	ATTENTION
	When using the web-site:
AT1	I felt there were distractions. (r)
AT2	I felt totally absorbed in what I was doing.
AT3	I thought about other things. (r)
	CURIOSITY
CU1	Interacting with this web-site made me feel curious.
CU2	I felt using the web-site aroused my imagination.
CU3	I felt using this web-site excited my curiosity.
	CONTROL
CO1	I felt that I had no control over my interactions with this web-site. (r)
CO2	This web-site allowed me to feel control over the computer interaction.
CO3	When navigating on this web-site, I felt in control.
	INTEREST
IN1	I felt bored interacting with this web-site. (r)
IN2	This web-site felt fun for me to navigate.
IN3	Interacting with this web-site felt interesting.

4.6.3 Shopping Value

Shopping value was introduced in Chapter Three, where both hedonic and utilitarian values were hypothesised outcomes of the emotional dimensions and flow (see Sections

3.3.4 and 3.3.5). Hedonic and Utilitarian Value were measured using items adapted from scales developed by Babin *et al. (*1994) and Kulviwat *et al.* (2007), discussed below.

Hedonic Shopping Value

Although the original Babin *et al.* (1994) scale has shown success in reliably measuring Hedonic Value (α = .93 – Babin *et al.*, 1994) and has received subsequent support in the literature (Babin & Attaway, 2000; Overby & Lee, 2006), the scale incorporates four items thought to relate conceptually more closely to the escapism construct. Due to the establishment of escapism as a distinct construct in marketing (e.g. Mathwick *et al.*, 2001), the items which are expected to correlate with escapism were considered to have the potential to create confounded results with flow and were thus removed from the study. Support for this alternative scale can be found in the existing literature; specifically, the same four items were removed in Griffin, Babin and Modianos (2000) following non-significant factor loadings and a lack of support for the secondary underlying shopping value factor. Griffin *et al. (*2000) report the reliability of the abridged value scale to be α = .86.

In addition to these structural changes, formative changes were required to adapt the scale to the online environment. Specifically, because the scale was originally formulated as a scale for application in bricks and mortar retail stores, the scale had low face validity for the current study. To apply the scale within an online retail environment and change scenario, semantic changes were made to the remaining items in-line with modifications made by Wang *et al.* (2007). The resulting Hedonic Value scale was comprised of seven Likert type items anchored from strongly disagree to strongly agree. The exact wording of the seven items is presented in Table 4-18.

Utilitarian Shopping Value

Given the role of technology in the shopping trip (see sections 2.2 and 2.3), in web-based environments the assessment of utilitarian value for an online retail environment should take into consideration the shopping technology as part of the shopping experience. In particular, the ability of the technology to assist in task completion should be included in the overall assessment of the functional value of a shopping trip. Therefore, Utilitarian Value was separated into two sub-constructs using items adapted from Babin *et al.*

(1994) to measure *Utilitarian Outcome Value* and items adapted from Davis (1989) to measure *Utilitarian Process Value.*

Utilitarian Outcome Value was measured using three items adapted from Babin *et al.* (1994). Although the original four-item scale was developed to isolate the value gained from an historic shopping trip, this study utilised the scale to measure value gain *potential* in future trips. Furthermore, given the purchase orientation present in the original scale items, the scale items required considerable rewording. Ultimately, one of the original items was removed due to low face validity once purchase orientation within the items was removed. Along with the reduction to purchase orientation, modifications were required to improve the face validity of all items in acknowledgement of the online context. Additionally, one item required modification to acknowledge the online banking sector. The three items for Utilitarian Outcome Value were anchored from strongly disagree to strongly agree on a seven-point scale. The exacting wording of the three Likert-type items for Utilitarian Outcome Value is presented in Table 4-19.

Utilitarian Process Value was measured using the six items adapted by Vrechopoulos, O'Keefe, Doukidis, and Siomkos (2004) from the original Perceived Usefulness scale in Davis (1989). Although other web-site usefulness scales that offer a reduced set of items exist (e.g. Montoya-Weiss, Voss & Grewel, 2003), these often reflect web-site *content* usefulness and the presentation of information as opposed to the process of shopping. In adopting the scale from Vrechopoulos *et al.* (2004), minor formative changes were required to transform the items from the bricks and mortar setting to the online banking context of the current study. As with Utilitarian Outcome Value, the six items were anchored from strongly disagree to strongly agree on a seven-point scale. The exact wording of the six items is presented in Table 4-19.

Table 4-18 - Scale Items for Hedonic Value

Coding	***Likert Items***
HV1	This online experience truly was a joy.
HV2	I continued to look around the web-site, not because I had to, but because I wanted to.
HV3	Compared to other things I could have done, the time spent at the web-site was truly enjoyable.
HV4	Navigating the web-site was not a very nice use of time. (r)
HV5	During the navigation, I felt the excitement of the hunt.
HV6	While navigating this web-site I felt a sense of adventure.

Table 4-19 - Scale Items for Utilitarian Value

Coding	***Likert Items***
	Utilitarian Outcome Value
UO1	I don't think I would be able to get the information or services that I might need at this web site. (r)
UO2	I would be able to accomplish just what I would want at this web-site.
UO3	While navigating this web-site, I wouldn't be able to find what I would be looking for. (r)
	Utilitarian Process Value
UP1	This web-site would be useful for conducting my banking activities.
UP2	This web-site would improve my performance in conducting banking activities.
UP3	This web-site would enable me to conduct banking activities faster.
UP4	This web-site would enhance my effectiveness in conducting banking activities.
UP5	This web-site would make it easier to conduct my banking activities.
UP6	This web-site would increase my productivity while conducting banking activities.

4.6.4 Measuring Behavioural Response within a Change Environment

Within a change environment, the consumer's acceptance of a changed web-site reflects their adoption of the new (modified) web-site as a replacement of the old (existing) web-site. In line with the Theory of Reasoned Action and the Theory of Planned Behaviour, previous technology acceptance studies show that acceptance can be measured through attitude toward use and intention to use (see Davis, 1989; Kulviwat *et al.*, 2007). Therefore, for this study, the consumer's acceptance of the changed online environment is a reflection of their attitude and intention toward using the changed web-site over the existing web-site. As a result, given the choice to use the new web-site ***or*** the old-web-site, high scores on both attitude toward using and intention to use the new web-site will reflect higher acceptance of the changed online environment than for lower reported scores on attitude and intention.

Therefore, by utilising the following precursory statement the attitude and intention measures were qualified and bound to a dichotomous outcome choice (new or old web-site), reflective of acceptance:

Re-acceptance
Based on a scenario where you could choose to use the **modified** web-site **<u>OR</u>** the **existing** web-site when you visit, please complete the following:

4.6.5 Attitude toward Re-Patronage

As the first of the acceptance variables, Attitude toward Re-patronage was hypothesised in Chapter Three to be an outcome of shopping value (see Section 3.3.7). To measure Attitude toward Re-patronage, this study developed a scale from items used in previous Attitude toward the Act scales. Specifically, items were sourced from Bansal, Taylor, and James (2005), Kulviwat *et al.* (2007), and Nysveen, Pederson and Thorbjornsen (2005). Due to validity concerns, possible confounds, and reliability concerns for the reduced item sets, no complete scale could be adopted; instead four items were adopted across the three studies. Of these items, one was present in all three source scales while the other three were present in two of the source scales. Due to the general nature of the items, no formative changes were required, although a context-based lead statement was added to supplement the precursory statement (as described in Section 4.6.4 above). All items were measured on a seven-point scale. The exact wording of the four semantic differential items and the lead statement are presented in Table 4-20.

Table 4-20 - Scale Items for Attitude toward Re-patronage

Coding	***Semantic Differentials***
	Visiting the **modified** *web-site would be:*
AR1	good / bad (r)
AR2	foolish / wise
AR3	favourable / unfavourable (r)
AR4	negative / positive

4.6.6 Re-patronage Intention

As described in Chapter Three, the final set of hypothesised relationships focused on consumers' re-patronage intentions. To measure Re-patronage Intention, this study adopted the four-item intention scale from Hess *et al.* (2003). Although existing web-site (re)visit intention scales exist (e.g. Coyle & Thorson, 2001; Rodgers, 2003), these often include items specific to certain web-site designs (e.g. subscriptions), research objectives (e.g. revisit intention to specific sections of web-sites) or cultures (e.g. verbal endorsement), and as such, have compromised face validity for this study. The Hess *et al.* scale, however, can be generalised to any business context with minor formative modification. Specifically, the Hess *et al.* (2003) scale is easily transferrable to the web-based shopping context by substituting "store" with "web-site". The items for the Re-patronage Intention scale were anchored from strongly disagree to strongly agree on a

seven-point scale. The exact wording of the four Likert type items measuring Re-patronage Intention is presented in Table 4-21.

Table 4-21 - Scale Items for Re-patronage Intention

Coding	*Likert Items*
RI1	I do not expect to visit the **modified** web-site in the future.
RI2	I expect my relationship with the **modified** web-site to be enduring.
RI3	I expect to be coming to the **modified** web-site for a long time.
RI4	It is likely I will visit the **modified** web-site in the future.

4.6.7 Demographic Measures

Five questions obtaining demographic data were also included in the research. These questions were related to gender, age, income, and two behaviour-based descriptors – Internet expertise, and Internet usage. The complete set of demographic questions can be found in Appendix Six.

4.6.8 Covariate Measures

Along with the independent and dependent variables, five individual difference variables were included in the research as covariate measures. As discussed in Chapter Three, enduring involvement with the product category, desire for change, optimal stimulation level, patronage frequency, and Internet self-efficacy were all measured due to the potential influence on the hypothesised relationships:

Due to the lack of relevant measures in the extant literature, a scale was developed to measure respondents' desire for change within the online environment. The desire for change scale was comprised of five Likert-type items adapted from the semantic structure of the items from the desire for unique consumer products scale in Lynn and Harris (1997) (see Table 4-22). Enduring Involvement was measured using the six-item adaptation of Zaichkowsky's (1985) Personal Involvement Inventory from Mathwick and Rigdon (2004) (see Table 4-23). Optimal Stimulation level was measured using the seven Likert items from the Change Seeking Index in Steenkamp and Baumgartner (1992) (see Table 4-24). Patronage Frequency was measured using the Number of Past Encounters with the Organization scale developed by Hess *et al.* (2003). While the Hess *et al.* (2003) scale was developed for measuring patronage frequency within service environments, the scale is broadly applicable to a variety of consumer settings by substituting category descriptors. In this case, reference to 'restaurant' from the original Hess *et al.* (2003)

scale was substituted with 'web-site' (see Table 4-25). Self Efficacy was measured using the original five Likert items from Jones (1986) as applied in Meuter *et al.* (2005) (see Table 4-26).

All scales were anchored from strongly disagree to strongly agree on a seven-point scale.

Table 4-22 - Scale Items for Desire for Change

Coding	***Likert Items***
DC1	I prefer to visit web-sites which are novel.
DC2	I am more likely to enjoy using a web-site which is different.
DC3	I like to use web-sites which feel familiar. (r)
DC4	I am very excited to use a web-site that has changed.
DC5	Given the choice, I would prefer the web-sites I use NOT to change. (r)

Table 4-23 - Scale Items for Enduring Involvement

Coding	***Semantic Differential Items***
	What are your thoughts about online banking?
EI1	worthless / valuable
EI2	mundane / fascinating
EI3	boring / interesting
EI4	unexciting / exciting
EI5	not needed / needed
EI6	means nothing to me / means a lot to me

Table 4-24 - Scale Items for Optimal Stimulation Level

Coding	***Likert Items***
CS1	I like to continue doing the same old things rather than trying new and different things. (r)
CS2	I like to experience novelty and change in my daily routine.
CS3	I like a job that offers change, variety, and travel, even if it involves some danger.
CS4	I am continually seeking new ideas and experiences.
CS5	I like continually challenging activities.
CS6	When things get boring, I like to find some new and unfamiliar experiences.
CS7	I prefer a routine way of life to an unpredictable one full of change. (r)

Table 4-25 - Scale Items for Patronage Frequency

Coding	*Likert Items*
	How would you characterise your history with this web-site?
PF1	I have visited this web-site many times in the past.
PF2	I am a frequent visitor of this web-site.
PF3	I normally go to this web-site.

Table 4-26 - Scale Items for Self Efficacy

Coding	*Likert Items*
SE1	I am fully capable of using the Internet.
SE2	I am confident in my ability to use the Internet.
SE3	Using the Internet is well within the scope of my abilities.
SE4	I do not feel I possess enough skill to use the Internet proficiently. (r)
SE5	My past experiences increase my confidence that I will be able to successfully use the Internet.

4.6.9 Control Variables

In Chapter Three, motivational orientation was identified as a factor which could influence the dependent variable in addition to the focal and covariate variables. Therefore, motivational orientation was anchored (controlled) within the design of the experiment through the use of a narrative (e.g. Kaltcheva & Weitz, 2006). To remain consistent with the naturally induced orientation (see Section 4.4.1), a narrative inducing utilitarian orientation was adopted (see Table 4-27).

Table 4-27 - Control Narrative for Motivational Orientation

Utilitarian Motivation
It's Wednesday afternoon and you have ordered pizza for your Karate club's annual club dinner tonight. You have also noticed an email from a week ago alerting you that you have a payment due in three days. Because the club administrator told you the club would send you the money you pay for the pizza, you want to check if the money has been paid to your 'Everyday Banking Essentials' account (A/C #: 03-0822-0334567-00). You have decided that if the money has been paid you will transfer the $50 needed for pizza directly from your 'Everyday Banking Essentials' account to your credit card. You have also decided to stop receiving paper statements and set-up alerts so your alerts will be sent to your mobile phone. So you make a note that when you are online you will set up your accounts so you no longer receive a statement for your 'Online Saver Account' (A/C #: 03-0822-0334567-01) and so that all your alerts are sent to your mobile phone. View the modified web-site and complete these tasks.

4.7 EXPERT PANEL

Prior to conducting the pre-test an expert panel was assembled to assess the validity of the narrative used to control motivation. The panel consisted of six active researchers, comprised of four PhD-level students and two staff with active research portfolios.

While the panel believed a utilitarian orientation was created by the narrative, feedback from the panel highlighted four areas of concern. First, the narrative was considered to be wordy and mentally taxing. This was a concern because a taxing narrative could absorb cognitive resources, which could undermine both the response to the modified web-site and the true focus of the research as well as increase mental attrition while responding to scale items.

The second concern related to the role of the narrative in the research; specifically the panel thought the narrative over-complicated the research and that it appeared to overstate the importance of the back-story to the overall research. This was a concern because the purpose of the narrative, which was to initiate utilitarian interaction by providing one or more objective achievable tasks, could be lost in the detail of the back-story.

The third concern related to the presentation of the tasks; specifically the panel raised concerns about requiring respondents to complete one-off tasks that they may never have completed before, as this could interfere with their response. Specifically, this was a concern as respondents could misinterpret their lack of familiarity with certain web-site features or pages as a dimension of change.

The final concern related to the level of control maintained by the narrative; specifically, the panel thought that respondents could feel controlled by the narrative rather than using the narrative as a launching pad for interaction with the web-site. If so, this was a concern because the scenario could create an assumed role for the respondent (i.e. a character) which could interfere with realistic and reliable consumer responses to the modified web-site.

Given the concerns raised by the expert panel, the narrative-based scenario was replaced with a descriptive instruction sheet. Within the instruction sheet, participants were

advised that they would be given a list of tasks requiring them to use a modified web-site for a fictitious account holder. Respondents were then asked to complete three of the tasks from this list while using the modified web-site. This approach removed the back story about pizza, the assumed role of the respondent, the requirement to complete all tasks, and much of the extraneous reasoning surrounding each task.

The revised control for motivational orientation is presented in Table 4-28. The majority of the expert panel supported this non-narrative control for motivational orientation.

Table 4-28 - Revised Control for Motivational Orientation

Utilitarian Motivation
You are about to view a list of tasks which will require you to use a modified version of the personal banking pages for a fictitious bank account holder. Please complete at least three (3) of the following tasks: - Check to see if $50.00 has been deposited by your Karate Club into your Everyday Banking Essentials account for pizza. - Transfer $50.00 from your Everyday Banking Essentials Account to your Visa Credit Card. - Download the transactions from the last month for your Electronic Account. - Set-up your accounts to stop receiving paper statements on your Online Saver Account. - Set up your alerts to be sent to your mobile phone. - Rename your Online Saver Account.

4.8 EXPERIMENTAL PROCEDURE

4.8.1 Recruitment of Participants

Due to ethical considerations, customers of the stimulus bank could not be recruited directly. Consequently, the initial recruitment procedure focused on active users of the personal banking pages of *any* New Zealand bank. To gain a sample of current users, prospective respondents were screened prior to data collection. To identify current customers of the stimulus bank, a list of nine banks was provided from which respondents were asked to select their bank(s) (if available). Following this screening procedure, any participant not a current customer of the stimulus bank was advised that

the maximum number of responses had been submitted for their bank and as such no further responses were required. After this message they were thanked for their time and instructed to close the window.

Additional legal considerations prohibited the recruitment of participants under the age of 18 as legal consent could not be reliably gained and validated through an online experiment. Furthermore, as the inducements offered were branded products of New Zealand Post (New Zealand Post Prezzy Cards), the prize draw implied participants should reside in New Zealand; however this was not a requirement provided participants were active users of the personal banking pages for a New Zealand bank. Because there were no further qualifying characteristics beyond the necessary experience with the web-site and minimum age, targeting the general population was considered appropriate.

To recruit participants, a 'pulsing' recruitment procedure was initially adopted. For this procedure, a recruitment notice was posted on regionally-based general purpose forums followed by a repeat post after ten days. However, due to a lack of general forums and low general subscription rates, the forum method of recruitment resulted in a low response rate. Alternatively, a snowballing method utilising social media was adopted. Specifically, the recruitment message was posted on Facebook and others were encouraged to post or link to the recruitment message. As with the forum posts, a repeat of the recruitment message was posted after ten days. Consequently, the total number of subjects exposed to the request for participants is unknown.

Recruitment took place over a five-week period commencing 15th July 2011 and concluding 21st August 2011 (See Table 4-29).

Table 4-29 - Recruitment Timeframe

Task	Date	Recruited Participants
Forum Posts		
Initial Posts	15th July, 2011 – 20th July, 2011	320
Repeat Posts	25th July, 2011 – 30th July, 2011	
Facebook Posts		
Initial Post	6th August, 2011.	1108
Repeat Post	16th August, 2011.	

4.8.2 Ethical Considerations

This research was conducted under the guidelines prescribed by the University of Canterbury Human Ethics Committee. Consequently, at the first available opportunity, participants were informed of the nature of their involvement in the research and their right to withdraw from the research at any point during the data collection phase (see Appendix 8.1). However, to ensure that responses were as reflective of real-world outcomes as possible, deception was adopted within the introduction to the research. In particular, the research was introduced to participants as a study into design preferences for personal banking web-sites. This level of deception was utilised to minimise the awareness of measurable response and reduce potential ill-effects from hypothesis guessing. In-line with ethical requirements this deception was rectified at the earliest possible time through a debriefing form (see Appendix 8.7). Those who withdrew from the experiment were debriefed directly after pressing the withdraw button. Those who completed the questionnaire were debriefed after the submission of the questionnaire.

In addition, participants were reminded of the anonymous nature of the research and its consequences. Specifically, participants were informed that as no identifying information was being collected, anonymity could be ensured. However, participants were also informed that such anonymity prevented data from being recalled should the participant desire to withdraw from the research after submitting their responses.

Finally, procedures were put in place to ensure that active and informed consent was obtained from each respondent prior to data collection: To ensure active consent was gained from participants, a proceed button was included which participants were required to click before gaining access to the experiment. To ensure informed consent was gained from participants, the “proceed” button was disabled until participants ticked a checkbox which stated they had read, understood, and accepted the conditions of participating in the research (see Appendix 8.1).

The research was reviewed and approved by the University of Canterbury Human Ethics Committee prior to data collection (see Appendix 7).

4.8.3 Online Experiment

This research was conducted as an online experiment whereby consumers accessed the experimental material at their own leisure. The experimental material included both the stimulus material and a self-report questionnaire, which were both designed by the researcher and hosted on a private server.

The experimental procedure can be broken into seven parts based on the content displayed in the participant's Internet browser (for full details, including screenshots, see Appendix 8):

Screen One - Appendix 8.1:

The first screen presented an introduction to the research and the provision of all information about the research as required by the University of Canterbury Human Ethics guidelines.

In particular, the research introduction included: the expectation of participants, the aim of the research, the identification of investigators, the anonymous nature of the research, the right to withdraw and finally, the required statement advising that the research had received approval from the University of Canterbury Human Ethics Committee. In line with Human Ethics guidelines, a downloadable version of this information was provided in PDF form.

As stated in the ethical considerations section (see Section 4.8.2), to proceed to the next screen, participants were required to provide informed consent. As such, participants were required to tick a check box acknowledging they had read the information about the project. Once the check box was ticked the "begin" button was activated. By clicking the "begin" button participants were taken to the second screen.

Screen Two - Appendix 8.2:

The second screen presented the questionnaire instructions and asked the first set of questions participants were required to respond to.

In the introduction, participants were thanked for agreeing to take part in the questionnaire, were then presented with specific instructions for completing the

questionnaire, and were reminded that they could withdraw from the research at any time.

Immediately following the introduction, participants were asked to consider the existing web-site then answer the questions related to the brand and web-site – involvement with the brand, attitude toward the web-site, and patronage frequency. Immediately following these, participants were asked to answer questions related to their optimal stimulation level and desire for web-site change. By clicking "continue", participants were taken to the third screen.

Screen Three - Appendix 8.3:

On the third screen, both the scenario and the experimental stimuli used in the research were introduced to participants.

To introduce the participants to the experimental stimuli, they were presented with a list of tasks from which they were required to complete at least three.

As there was no measure of task completion for the experiment, to ensure that participants were able to provide informed answers to the related questions, participants were required to remain on the modified web-site for at least two minutes.

Within the scenario participants were advised that while some functionality would not be present in the stimulus web-site, they were to answer the questions based on perceptions of a fully functional version of the site.

To access the experimental stimuli, consumers were instructed to click on the "display" button when they were ready and reminded they were required to stay on the stimulus web-site for at least two minutes.

Screen Four - Appendix 8.4:

After the "display" button was clicked, each participant was randomly assigned one of the four stimulus web-sites to view. To ensure participants spent at least two minutes on that web-site, the close button was not activated until the web-site had been displayed for two minutes, at which point participants were able to close the stimulus web-site and access the fifth screen. To prevent unauthorised access to the stimulus material, access to

all experimental stimuli was removed through the use of cookies and JavaScript once the participant had finished viewing the stimulus web-site.

Screen Five - Appendix 8.5:

In the fifth section, participants were asked to answer the questions related to change and the emotional dimensions with respect to the stimulus web-site they had used. Participants who clicked the "continue" button were taken to the sixth screen.

Screen Six - Appendix 8.6:

On the sixth screen, participants were asked to answer the questions related to the experience they had on the modified web-site – specifically, flow, shopping value, re-patronage attitude, and re-patronage intention. By clicking "continue", participants were taken to the seventh screen.

Screen Seven - Appendix 8.7:

The seventh screen presented the final group of questions which focused on respondent demographics. In particular, questions covering age, gender, education, experience and expertise were presented. In addition, the ethical considerations outlined on the first screen were repeated and participants were reminded that due to the lack of identifying information in the data once their response was submitted it could not be retrieved. Participants who clicked the "submit" button were taken to screen eight.

Screen Eight - Appendix 8.8:

On the eighth screen consumers were presented with a thank-you note for their time and effort in completing the questionnaire. Just below this, participants were invited to participate in the prize draw. Below this, the debrief and a disclaimer were presented.

For the prize draw, participants were informed that to participate in the prize draw they would need to supply an email address which would be stored in a separate database to their questionnaire responses. Participants were also made aware of the conditions of the prize draw: that the email address would be used for the purposes of contacting the winners only, that their email addresses would not be sold, gifted or used by any third party, and that once the draw is made the database would be destroyed. Participants who intended to participate were required to tick a checkbox stating that they understood their

email address will be stored under the conditions outlined. Once the checkbox was ticked the participant could then submit their email address.

As with the main questionnaire, an information sheet outlining the details of the prize draw was made available to download as a PDF prior to the submission of an email address.

The debrief stated the true purpose of the research and clarified the deception used in the introduction of the research – specifically the debrief focused on the need and scope of the deception used in the research.

Additionally, although each facsimile represented a change from the current state, each still engendered a likeness to the bank, therefore a disclaimer was also provided. The disclaimer, in addition to the information presented in the debrief, stated the absence of ties between the research and any bank. Specifically, the disclaimer clarified that no bank held any tie to the research nor was any bank involved at any level with the research. In addition, the disclaimer stated that any future change to the personal banking pages of any bank's web-site would be coincidental and independent from the findings of the research.

Those who did not wish to participate in the prize draw were able to view the debrief and disclaimer on screen eight, after which they were thanked again for their time and instructed to close the browser window.

To ensure those who participated in the prize draw viewed the debrief and disclaimer, respondents were taken to the ninth screen once an email address was submitted for the prize draw.

Screen Nine - Appendix 8.9:

On the final screen, the debrief and disclaimer were presented again to ensure the prize draw participants were fully informed and debriefed about the research. As with screen seven, following the debrief and disclaimer, participants were once again thanked and instructed to close the browser window.

4.9 SAMPLE SIZE CONSIDERATIONS

While there are differing requirements for varying analytical techniques, to meet the statistical requirements for Regression a sample size above 280 was required (Hair, Black, Babin & Anderson, 2009 – *20 respondents per observed variable*). Moreover, to meet the statistical requirements for Path Analysis a sample size above 280 was required (Kline, 2005 – *10 cases for each free parameter*).

4.10 PRE-TEST

Prior to the main data collection a pre-test was undertaken. There were three main objectives in undertaking the pre-test. First, the pre-test was used to examine the effectiveness of the experimental manipulations in engendering the desired levels of change between the four change conditions. Second, the pre-test was used to confirm that the experimental web-site was properly programmed and operational across all hardware/software configurations that may be utilised during the main collection phase. Finally, the pre-test was used to ensure the experimental procedure was understood by subjects, highlighting any ambiguity in either the instructions for the study or the wording of the questionnaire.

4.10.1 Sample

The pre-test sample consisted of undergraduate students from the University of Canterbury. Students were recruited through either an invitation posted in the forum of the class e-learning environment or via an email to the class. In total, 19 classes were recipients of the invitation providing a recruitment population of 3550 students who were potentially exposed to the invitation. To encourage participation in the pre-test, two $100 NZ Post Prezzy Cards were offered as an incentive to prospective participants.

In total 748 participants were recruited, representing a response rate of 21%. Of those, 609 were identified as non-customers of the bank, with the remaining 139 forming the *screened respondent sample*. Within the screened respondent sample, 30 participants exercised their right to withdraw from the research for unknown reasons. In total, 109 complete responses were gained. The breakdown of the pre-test recruitment figures is presented in Table 4-30.

Table 4-30 - Summary of Pre-Test Recruitment

Respondent Type	N	Proportion
Non Customer	609	81.4%
Withdrawn Response	30	4.0%
Complete Response	*109*	*14.6%*
Total	**748**	**100%**

As a part of data collection, the progress of participants was recorded to enable analysis of withdrawn respondents. This data recorded the most recent screen a respondent viewed before closing the browser. Based on the data collected, there was no single screen which raised concerns about the functionality of the web-site as a cause for withdrawal. A summary of the research progress for withdrawn responses is presented in Table 4-31. While some feedback related with withdrawal was obtained, the large majority of withdrawn respondents did not share their reason for withdrawal. However, a number of extenuating causes could lead to respondent withdrawal; for example respondents could have been interrupted, found the experiment too taxing, or the incentives on offer poor value for the effort they felt was required.

Table 4-31 - Summary of Withdrawn Responses

Screen	N	Proportion
Coversheet	6	20.0%
Screen 1 – Questionnaire Part 1	5	16.7%
Screen 2 – Introduction to Experiment	3	10.0%
Screen 3W – Manipulation Web-site	6	20.0%
Screen 3 – Questionnaire Part 2	5	16.7%
Screen 4 – Questionnaire Part 3	4	13.3%
Screen 5 – Questionnaire Part 4	1	3.3%
TOTAL	**30**	**100%**

4.10.2 Manipulation Checks

To empirically examine the effectiveness of both manipulations, the two scales for perception of task-relevant change and perception of non-task-relevant change were used as manipulation checks. However, before examining the success of the experimental manipulations, the dataset was screened for accuracy and missing data. Following screening, seven cases were randomly deleted to ensure an equal number of responses per cell. The resulting dataset was characterised by a sample size of 100, with 25 subjects per experimental condition. To assess the unidimensionality and reliability of both scales,

Principal Components Analysis (with Varimax rotation) and Cronbach's alpha procedure were then conducted.

From the results of principal components analysis, two items in the task-relevant scale (TR8 and TR5) were removed due to poor communality scores. Similarly, in the non-task-relevant scale, two items (NT3 and NT4) were also removed due to poor communality scores. One further item was removed from the Task-Relevant Change scale (TR7) as a result of Cronbach's alpha procedure, increasing the parsimony of the overall scale. Subsequently, the revised Task-Relevant Change scale consisted of five items while the revised Non-Task-Relevant Change comprised three items. Both revised scales demonstrated excellent levels of reliability. Table 4-32 and Table 4-33 present the items retained for each scale, the mean score and standard deviation for each item in the scale as well as the overall scale score, which represents the mean of all items in the scale. In addition, the Cronbach's alpha score for the scale is also presented.

Table 4-32- Perception of Task-Relevant Change Scale

Coding	*Scale Item*	*Mean*	*Std Dev*
TR1	What I needed to do to complete my tasks was very different.	3.91	1.79
TR2	How I used the web-site was very different.	3.85	1.73
TR3	The way I used the web-site was very different.	3.78	1.69
TR4	The web-site was very different with respect to the parts used to complete tasks.	3.98	1.75
TR6	The parts of the web-site I interacted with to complete my tasks were very different.	3.88	1.72
Total 5-Item Scale		**3.88**	**1.60**
Cronbach's Alpha		**.96**	

Table 4-33 - Perception of Non-Task-Relevant Change Scale

Coding	*Scale Item*	*Mean*	*Std Dev*
NT1	The way the web-site looked was very different.	4.25	1.84
NT2	The visual design of the web-site seemed very different.	4.08	1.75
NT5	The way the web-site was presented was different.	4.65	1.67
Total 3-Item Scale		**4.33**	**1.64**
Cronbach's Alpha		**.93**	

To examine the effectiveness of the experimental manipulations, two separate independent sample t-tests were conducted. Using the total scale means for each level of change, the mean for the low level of change was tested against the mean for the high

level of change to determine if significant differences ($p < 0.05$) existed between the two levels of change in both the task-relevant and non-task-relevant manipulations. The summary of these analyses are presented in Table 4-34 and Table 4-35.

Table 4-34 - Descriptive Statistics for Task Relevant and Non-Task-Relevant Manipulations

Change Manipulation	Mean	Std Dev
Task Relevant		
Low	3.20	1.48
High	4.56	1.43
Non-Task-Relevant		
Low	3.95	1.68
High	4.70	1.52

Table 4-35 - t-test Results for Task-Relevant and Non-Task-Relevant Manipulations

Change Manipulation	t	sig
Task Relevant	- 4.68[a]	0.00
Non-Task-Relevant	- 2.33[b]	0.02

a. Equal variances assumed - Levenes test F = 0.01, p = 0.92
b. Equal variances assumed - Levenes test F = 1.45, p = 0.23

Statistical analysis showed that both the Task Relevant and Non-Task-Relevant manipulations were successful.

In addition to the statistical verification of the conditions, the pre-test also verified the reliability of the experimental web-site. During the experiment, a number of technical changes were made to enable the research to work on an extended number of platforms. In addition, minor alterations were suggested by respondents to aid in the completion of the research, in particular, font size and layout. The screening procedure was also improved to allow potential respondents who were customers of multiple banks to participate if any of the banks they identified matched the source bank. Consequently, these changes were made to the web-site prior to commencing the main data collection phase.

4.11 CHAPTER SUMMARY

The focus of this chapter was on the development of a quantitative research design to investigate the relationships hypothesised in Chapter Three. First, the chapter presented an introduction to the experiment along with a discussion on the manipulation of change and the measurement of a-priori experience. Following this, the development of the questionnaire was discussed, including the development of all of the scales used in the research. In the section following, the experimental procedure was discussed, which covered the selection of the web-based retailer, the recruitment of participants, the ethical considerations, and an overview of the online experiment. In the final sections of the chapter, an introduction to the pre-test was presented before the results of the pre-test validated the experimental method and confirmed the successful manipulation of the independent variables.

5 ANALYSIS AND RESULTS

5.1 INTRODUCTION

The aim of this chapter is to present the results of the statistical analyses of the data collected. To achieve this aim, the chapter is structured around nine main sections. In the first section the characteristics of the sample used in this study is presented. Following this, the factor structure and reliabilities of the scales used in the online questionnaire are examined in Section Two. The effectiveness of the experimental manipulations for Task-Relevant and Non-Task-Relevant Change is examined in Section Three. From here, the fourteen hypotheses proposed in Chapter Three is addressed sequentially. Accordingly, the effects of Change on Arousal and the effects between the emotional dimensions are addressed in the fourth and fifth sections, respectively. Following these, the effects of the emotional dimensions on Flow and Value are examined. In Section Seven, the effects of Value on re-acceptance (Attitude toward Re-patronage and Re-patronage Intention) are examined followed by the effects of Value on re-acceptance in Section Eight. Finally, in the last section, the relationships outlined in the conceptual model are simultaneously examined through the use of Path Analysis. The chapter concludes with a summary of the results.

5.2 SAMPLE SIZE AND COMPOSITION

As outlined in Chapter Four, the main data collection phase for this research started on 15 July 2011, from which time participants were invited to take part in this study (see Table 4-29). The collection of data for the main experiment was completed on 21 August 2011.

In total 1428 participants were recruited. Of those, 1060 were identified as non-customers of Westpac, with the remaining 368 forming the *screened respondent sample*. Within the screened respondent sample, 65 participants exercised their right to withdraw from the research for unknown reasons. In total, 303 responses were gained.

Before starting the statistical analyses, the data was screened for any missing values, univariate outliers and systematic responses. During this process two cases were removed. In order to satisfy assumptions of specific statistical techniques, such as ANCOVA, and to avoid potential problems caused by unequal sample sizes, an

additional nine cases were randomly deleted from the screened respondent sample, thus creating a final sample size of 292 (with 73 subjects per experimental condition).

Similar to the pre-test, the progress of participants was recorded to enable the analysis of withdrawn respondents. Subsequently, the stage of the research reached by each unsubmitted response is presented below in Table 5-1.

Table 5-1 - Summary of Withdrawn Respondents during Main Experiment

Screen	Number	Proportion
Coversheet	10	15.4%
Screen 1 – Questionnaire Part 1	8	12.3%
Screen 2 – Introduction to Experiment	11	16.9%
Screen 3 – Manipulation Web-site	13	20.0%
Screen 4 – Questionnaire Part 2	11	16.9%
Screen 5 – Questionnaire Part 3	9	13.8%
Screen 6 – Questionnaire Part 4	3	4.6%
TOTAL	**65**	**100%**

All screens, except for Screen Six, were found to have a similar number of withdrawn responses. Screen Six, however, was the last screen of the questionnaire and, as such, appeared to discourage withdraw. The proportion of withdrawn responses closely approximated that found during the pre-testing phase (see Table 4-31).

Sample Composition

Analyses were undertaken to examine the socio-demographic characteristics of the sample, the results of which are presented in Table 5-2. 46.9% of respondents were male, the other 53.1% being female. In terms of age distribution, 44.3% were between 24-34, with the remaining 55.7% shared between the 18-24 (40.4%) and 35 or older (15.3%) groups. 57.4% had some level of tertiary education, with 45.4% holding a University undergraduate degree. Respondents largely expressed themselves as proficient users of the Internet (61.6%) with few identifying themselves as novice users (2.1%). In terms of Internet experience, 78.1% used the Internet for more than 9 hours per week. Interestingly, Internet usage was fairly evenly dispersed amongst the categories, with 10-14 hours of use per week holding the highest frequency (21.6%).

Table 5-2 - Respondent Proportions for Demographic Variables

Variable	Category	Proportion
Age	18-24	40.4%
	25-34	44.3%
	35 or older	15.3%
Gender	Male	46.9%
	Female	53.1%
Education	Did not Complete High School	1.7%
	Completed High School	40.1%
	Polytechnic Diploma	6.5%
	Polytechnic Degree	2.4%
	University Undergraduate Degree	45.4%
	University Postgraduate Degree	3.1%
Internet Experience	Less than 5 hours	5.1%
	5 – 9 Hours	16.8%
	10 – 14 Hours	21.6%
	15 – 19 Hours	15.4%
	20 – 24 Hours	15.4%
	25 – 29 Hours	13.0%
	30 Hours or More	12.7%
Internet Expertise	Novice	2.1%
	Competent	36.3%
	Proficient	61.6%

5.3 SCALE STRUCTURE AND RELIABILITY

Following socio-demographic analysis of the data, all scales used in the study were assessed for their dimensionality using Principal Components Analysis and internal consistency (reliability) using the Cronbach alpha procedure (Cronbach, 1951). All scales were then examined for non-normality and contamination from outliers using tests for skewness and kurtosis.

5.3.1 Scale Structure

The underlying dimensionality of the scales used in this research was analysed using Principal Components Analysis with Varimax rotation. Within Principal Components Analysis a minimum loading criteria of 0.5 was adopted. In addition any item with a loading score greater than 0.5 for two or more factors was deemed a cross-loading item.

Independent Measures

Analysis of the eight-item Task-Relevant Change scale produced a single factor, as expected. However, low communality scores resulted in the removal of two items (TR5 and TR8). Similarly, analysis of the five-item Non-Task-Relevant Change scale produced a single factor, however, two items were also removed due to low communality scores (NT3 and NT4). The Task Relevant and Non-Task-Relevant Change scales accounted for 79.7% and 83.2% of their variances, respectively.

Pleasure, Arousal and Dominance

Analysis of the full eighteen scale items for Pleasure, Arousal and Dominance initially produced four factors. Within those four factors, low communality scores resulted in the removal of three items – one from each of the Arousal (EA6), Dominance (ED6), and Pleasure scales (EP6). In addition, cross loading resulted in the removal of two items from the Dominance Scale (ED1 and ED2). After removal of the items, a four-factor solution remained, in which Dominance and Pleasure were presented as individual factors with two distinct factors for Arousal. Conceptually, a four-factor emotion paradigm is not supported in the literature, therefore, the two items comprising the secondary Arousal factor (EA1 and EA2) were removed from further analysis. Once these items were removed, Pleasure, Arousal and Dominance accounted for 48.0%, 15.9% and 9.9% of the variance, respectively.

A-priori Experience

Analysis of the three-item scale measuring A-priori Experience indicated a unidimensional solution with support for the complete set of items. The complete three-item scale explained 87.6% of the variance.

Flow

Analysis of the variables utilised to measure Flow indicated that although both the Curiosity and Control scales were found to be unidimensional, low communality scores and cross loadings again affected the item loadings within the two remaining scales. Specifically, two items were removed from the Attention scale (AT1 and AT2) and one item from the Involvement scale (IN1). The single remaining Attention item (AT3), was

found to be a distinct factor accounting for 11.4% of the variance, however, as a single item factor, AT3 was excluded from further analysis. With the removal of IN1 from the Involvement scale, the remaining two items loaded with the three scale items for Curiosity. Given the strength of the loadings, all five items were retained and the scale was renamed *Internet Curiosity* – reflective of the intrigue and involvement engendered when interacting with an online environment. Ultimately Internet Curiosity and Control explained 50.6% and 23.9% of the variance, respectively.

Value

Analysis of the fifteen Value items identified three factors, as expected. However, a low communality score for HV4, resulted in its removal. Additionally, one item from the Utilitarian Process Value scale (UP1) loaded with the items for Utilitarian Outcome Value. Consequently, item UP1 was removed from the analysis. After removal of these items, Hedonic Value, Utilitarian Process Value, and Utilitarian Outcome Value explained, 16.5%, 53.1% and 8.4% of the variance, respectively.

Re-Acceptance

The measures for Attitude toward Re-patronage and Re-patronage Intention were both found to be unidimensional, with the complete four-item scale for Attitude toward Re-patronage explaining 87.3% of the variance, and the complete four-item scale for Re-patronage Intention explaining 77.5% of the variance.

Covariate Measures

Analysis of the five scale items for Desire for Change produced two factors, however due to low communality and strong cross-loadings, item DC4 had to be removed resulting in a two-item, two-factor solution for Desire for Change. The first resulting factor reflected a desire for difference, while the second factor, with reversed coding, reflected a desire for familiarity. Although not conceptualised, perhaps ‘difference’ and ‘familiarity’ are not antonymic. Instead, difference and familiarity could be distinct dimensions of change, in much the same way that satisfaction and dissatisfaction are distinct constructs (e.g. Herzberg *et al*., 1959, Huang *et al*., 2010). The *Desire for Difference* scale explained 45.0% of the variance, while the *Desire for Familiarity* scale explained 30.4% of the variance.

Enduring Involvement was found to be a two-dimensional construct. A lack of cross-loadings and strong communality scores suggested both factors be retained. Analysis of the items indicated that one dimension of involvement related to affective importance (EI1, EI5, EI6), while the other dimension related to rationalised importance (EI2, EI3, EI4). As both affective and rational components have been identified as important dimensions of involvement (Zaichkowsky, 1994), both scales were retained for further analysis. *Affective Involvement* and *Rational Involvement* measures explained 46.1% and 27.5% of the variance, respectively.

Although all five Self-Efficacy items loaded as a single factor, low communality scores resulted in the removal of two items (SE4 and SE5). The resultant scale explained 95.3% of the variance.

Optimum Stimulation Level was found to be a two-dimensional construct after the deletion of a single cross loading item (CS2) and one item with low subsequent communality (CS6). However, after analysis of the two factors, conceptual support for the two-factor solution could not be found and the remaining two items from the secondary dimension (CS1 and CS7) were subsequently removed. The resultant scale explained 72.8% of the variance.

Patronage Frequency was found to be unidimensional with support for the complete set of scale items. The three-item Patronage Frequency scale explained 87.3% of the variance.

5.3.2 Scale Reliability

Subsequent to Principal Components Analysis, the scales used for this study were tested for internal consistency (reliability) using Cronbach's alpha procedure. Results of Cronbach's alpha procedure suggested that the removal of any item would not have improved reliability, therefore the composition of each scale remained unchanged. In Table 5-3, each scale and its Cronbach alpha score are presented.

All scales other than three of the covariate scales (Desire for Difference, Desire for Familiarity, and Affective Involvement) exhibited acceptable levels of reliability (i.e. Cronbach $\alpha \geq 0.70$). Consequently, caution should be exercised when interpreting any analysis related to these variables.

Table 5-3 - Cronbach Alpha Reliability Co-efficient for Total Scale Variables

Scale	Cronbach's Alpha
Perception of Task-Relevant Change	.95
Perception of Non-Task-Relevant Change	.90
A-priori Experience	.93
Arousal	.83
Pleasure	.92
Dominance	.72
Degree of Flow Felt	*.85*[a]
Internet Curiosity	.90
Control	.84
Hedonic Value	.88
Utilitarian Value	*.93*[b]
Utilitarian Process Value	.97
Utilitarian Outcome Value	.82
Attitude toward Re-patronage	.95
Re-patronage Intention	.90
Covariate Measures	
Desire for Difference	.69
Desire for Familiarity	.61
Affective Involvement	.67
Rational Involvement	.89
Change Seeking (OSL)	.81
Patronage Frequency	.92
Self-Efficacy	.98

a. Univariate Scale (CU1, CU2, CU3, IN2, IN3, CO1, CO2, CO3)
b. Univariate Scale (UP2, UP3, UP4, UP5, UP6, UO1, UO2, UO3)

5.3.3 Descriptive Statistics

Table 5-4 below presents the descriptive statistics for the measures used within this study. For each scale, the mean and median score as well as the standard deviation is presented along with statistics for skewness and kurtosis. As evidenced in Table 5-4, all but three scales were found to be approximately normally distributed with no evidence of effectual skew or kurtosis. The covariate measures of Enduring Involvement, Patronage Frequency and Self-Efficacy, however, all demonstrated strong kurtosis and negative skew, indicating the sample was highly involved, used online banking a lot, and believed they were skilled Internet users.

Histograms (with normal curves) for all scales are provided in Appendix 9 and a correlation matrix for the measures used in this study is provided in Table 5-5.

Table 5-4 - Descriptive Statistics for Total Scale Variables

Scale	Mean	Median	Std Dev	Skewness	Kurtosis
Perception of Task-Relevant Change	3.99	4.00	1.49	0.01	-0.82
Perception of Non-Task-Relevant Change	4.25	4.33	1.50	-0.23	-0.73
A-priori Experience	5.52	5.67	1.12	-0.84	0.95
Arousal	0.29[c]	0.00	0.95	0.41	0.91
Pleasure	0.13[c]	0.00	1.19	-0.03	-0.00
Dominance	-0.13[c]	0.00	0.77	-0.17	1.69
Degree of Flow Felt[a]	3.53	3.62	1.01	-0.16	0.02
Internet Curiosity	3.56	3.60	0.90	0.26	0.01
Control	4.19	4.00	1.35	-0.14	-0.54
Hedonic Value	2.84	2.80	1.23	0.29	-0.52
Utilitarian Value[b]	3.91	4.00	1.41	-0.04	-0.48
Utilitarian Process Value	3.59	3.80	1.61	0.12	-0.61
Utilitarian Outcome Value	4.46	4.67	1.47	-0.30	-0.24
Attitude toward Re-patronage	3.75	4.00	1.60	-0.07	-0.88
Re-patronage Intention	3.50	3.75	1.50	-0.00	-0.66
Covariate Measures					
Desire for Difference	0.44	0.50	1.19	-0.13	-0.03
Desire for Familiarity	-0.73	-0.50	1.06	-0.10	-0.14
Affective Involvement	4.29	4.00	1.01	-0.10	0.98
Rational Involvement	6.52	6.67	0.62	-2.43	9.82
Change Seeking (OSL)	5.12	5.00	1.08	-0.46	0.10
Patronage Frequency	6.28	7.00	1.16	-2.16	5.18
Self-Efficacy	6.76	7.00	0.55	-4.40	33.00

a. Univariate Scale (CU1, CU2, CU3, IN2, IN3, CO1, CO2, CO3)
b. Univariate Scale (UP2, UP3, UP4, UP5, UP6, UO1, UO2, UO3)
c. Arousal, Pleasure and Dominance were measured on a nine-point scale with item-response values anchored from -4 to +4.

Table 5-5 - Correlation Matrix for Total Scale Variables (*r* Values)

	TR	NT	AE	EA	EP	ED	IC	CO	HV	UP	UO	AR	RI	DD	DF	IA	IR	CS	PF	SE
1. Task-Relevant Change (TR)		.61*	.10*	-.04	.48*	.26*	-.13*	-.53*	-.09*	-.40*	-.52*	-.42*	-.37*	-.05	-.09	.18*	.16*	.07	.07	.02
2 .Non-Task-Relevant Change (NT)			.08	.17*	.17*	.17*	-.09	-.19*	-.08	-.14*	-.25*	-.17*	-.15*	-.04	-.11	.21*	-.01	.04	.05	.09
3. A-priori Experience (AE)				.03	-.03	-.10	.00	.08	.09	-.01	-.04	-.08	-.09	-.04	.24*	.31*	.33*	.04	.45*	.29*
4. Arousal A (EA)					.37*	.21*	.28*	.13*	.37*	.20*	.18*	.22*	.21*	.03	.03	.12*	-.04	.11	-.01	-.02
5. Pleasure (EP)						.41*	.50*	.64*	.59*	.66*	.57*	.67*	.57*	.15*	.15*	.12*	-.11	-.00	-.03	-.01
6. Dominance (ED)							.28*	.31*	.7*	.22*	.21*	.12*	.09	-.04	.09	.05	.03	.04	.17*	-.08
7. Flow – Internet Curiosity (IC)								.33*	.60*	.44*	.33*	.44*	.38*	.23*	.09	.08	-.03	.05	-.02	.08
8. Flow – Control (CO)									.31*	.58*	.64*	.55*	.50*	.12*	.04	-.04	-.13*	-.04	-.01	.02
9. Hedonic Value (HV)										.53*	.30*	.54*	.53*	.20*	.10	.22*	-.10	.13*	-.04	-.07
10. Utilitarian Process Value (UP)											.60*	.69*	.70*	.17*	.04	.06	-.08	.01	.00	.00
11. Utilitarian Outcome Value (UO)												.57*	.52*	.10	.07	-.14*	-.10	.02	-.02	.06
12. Attitude toward Re-patronage (AR)													.81*	.23*	.15*	-.00	-.18*	.09	-.10	-.04
13. Re-patronage Intention (RI)														.22*	.18*	-.03	-.12*	.11	-.05	-.04
14. Desire for Difference (DD)															.20*	.04	.02	.15*	-.05	-.05
15. Desire for Familiarity (DF)																-.13*	-.13*	.13*	-.16*	.22*
16. Affective Involvement (IA)																	.24*	.12*	.13*	.08
17. Rational Involvement (IR)																		.02	.34*	.31*
18. Change Seeking (CS)																			.11	.14*
19. Patronage Frequency (PF)																				.34*
20. Self Efficacy (SE)																				

* $p < 0.05$

5.4 MANIPULATION CHECKS

As with the pre-test outlined in Chapter Four, the scales measuring perception of Task-Relevant Change and perception of Non-Task-Relevant Change were used as manipulation checks for the main experiment.

In Table 5-6 and Table 5-7, the items used for each scale are presented with their mean score and standard deviation. The overall Cronbach's alpha value is also included. In addition, both scales are compared with the results obtained from the pre-testing phase of this research.

Table 5-6 - Perception of Task-Relevant Change

		Pre-Test		**Main Experiment**	
Coding	***Scale Item***	***Mean***	***Std Dev***	***Mean***	***Std Dev***
TR1	What I needed to do to complete my tasks was very different.	3.91	1.79	4.01	1.73
TR2	How I used the web-site was very different.	3.85	1.73	3.96	1.68
TR3	The way I used the web-site was very different.	3.78	1.69	3.91	1.66
TR4	The web-site was very different with respect to the parts used to complete tasks.	3.98	1.75	4.08	1.70
TR6	The parts of the web-site I interacted with to complete my tasks were very different.	3.88	1.72	3.98	1.67
TR7	The way I was able to use the web-site had many changes.	n/a	n/a	4.05	1.59
Total Six-Item Scale		**3.88**	**1.60**	**3.99**	**1.49**
Cronbach's Alpha		**.96**		**.95**	

Table 5-7 - Perception of Non-Task-Relevant Change

		Pre-Test		**Main Experiment**	
Coding	***Scale Item***	***Mean***	***Std Dev***	***Mean***	***Std Dev***
NT1	The way the web-site looked was very different.	4.25	1.84	4.21	1.71
NT2	The visual design of the web-site seemed very different.	4.08	1.75	4.07	1.63
NT5	The way the web-site was presented was different.	4.65	1.67	4.46	1.60
Total Three-Item Scale		**4.33**	**1.64**	**4.25**	**1.50**
Cronbach's Alpha		**.93**		**.90**	

To confirm the effectiveness of the experimental manipulations, two separate independent sample t-tests were conducted to determine if a significant difference ($p < 0.05$) was present between the mean score of the low condition and the mean score of the

high condition for each perception of change measure. Results of these analyses are presented in Table 5-8 and Table 5-9. As with Table 5-6 and Table 5-7 the results from the main experiment are compared to the results obtained during the pre-testing phase of this study.

Table 5-8 - Results of Independent Samples t-tests for Change Manipulations

	Pre-Test		Main Study	
Change Manipulation	***t***	***sig***	***t***	***sig***
Task Relevant	- 4.68	0.00	-9.94	0.00
Non-Task-Relevant	- 2.33	0.02	-3.11	0.00

Table 5-9 - Descriptive Statistics for Level of Task-Relevant Change Manipulation

Level of Task Relevant Change	**Pre-Test**		**Main Study**	
	Mean	***Std Dev***	***Mean***	***Std Dev***
Low	3.20	1.48	3.25	1.32
High	4.56	1.43	4.75	1.26
Total	**3.88**	**1.60**	**3.99**	**1.49**

Table 5-10 - Descriptive Statistics for Level of Non-Task-Relevant Change Manipulation

Level of Non-Task Relevant Change	**Pre-Test**		**Main Study**	
	Mean	***Std Dev***	***Mean***	***Std Dev***
Low	3.95	1.68	3.98	1.60
High	4.70	1.52	4.52	1.35
Total	**4.33**	**1.64**	**4.25**	**1.50**

The results indicate that both experimental manipulations were successful. However, while partial Eta squared statistics showed the effect to be large for Task-Relevant Change ($\eta_p^2 = 0.27$), the effect for Non-Task-Relevant Change was found to be small ($\eta_p^2 = 0.04$).

As expected, across both perception measures, the mean score for the high condition (i.e. more change) was greater than that for the low condition, although the effect is more pronounced for Task-Relevant Change. These effects are presented in Table 5-9 and Table 5-10, and illustrated in Figure 5-1 and Figure 5-2.

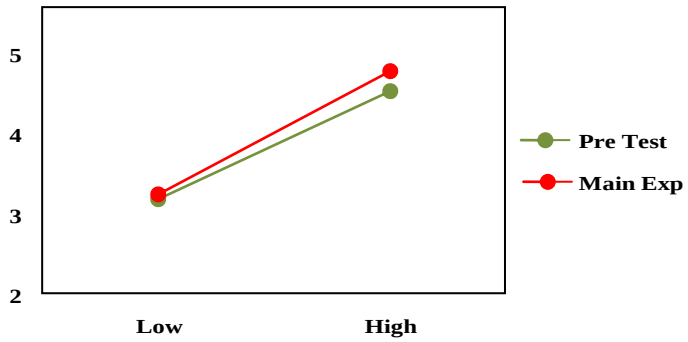

Figure 5-1 – Means Plot for Task-Relevant Change

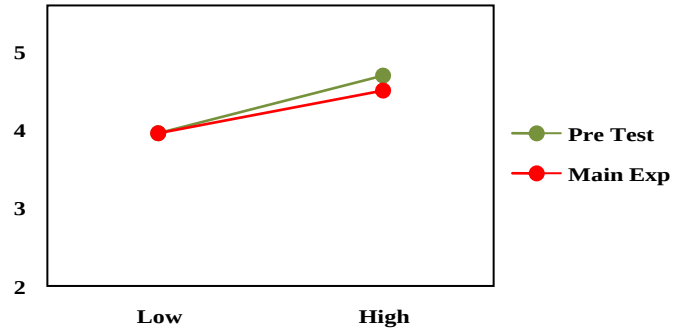

Figure 5-2 – Means Plot for Non-Task-Relevant Change

As a final step, the effect of the socio-demographic variables on the perception of Task-Relevant Change and the perception of Non-Task-Relevant Change was investigated. To examine the effects of the socio-demographic variables two ANCOVAs were conducted, whereby the level of Task-Relevant Change and the level of Non-Task-Relevant Change were entered into two separate analyses as independent variables, with Age, Gender, Education, Internet Experience and Internet Expertise entered as covariate measures. The perception of Task-Relevant Change measure and the perception of Non-Task-Relevant Change measure were entered as the two respective dependent variables. The results of these analyses are presented in Table 5-11 and Table 5-12.

Table 5-11 - Results of ANCOVA for Task-Relevant Change

	Task-Relevant Change		
Variable	***F***	***sig***	η_p^2
Gender	0.97	.33	.00
Education	0.78	.38	.00
Experience	0.23	.64	.00
Expertise	7.23	.01	.03
Age	0.05	.82	.00
Level of Task-Relevant Change	93.47	.00	.25
Level of Non-Task-Relevant Change	1.30	.26	.01
$INT_{(TRM,NTM)}$	1.33	.25	.01

Table 5-12 - Results of ANCOVA for Non-Task-Relevant Change

	Non-Task-Relevant Change		
Variable	***F***	***sig***	η_p^2
Gender	0.28	.60	.00
Education	2.51	.12	.01
Experience	1.00	.32	.00
Expertise	0.38	.54	.00
Age	0.01	.94	.00
Level of Task-Relevant Change	3.21	.07	.17
Level of Non-Task-Relevant Change	12.35	.00	.04
$INT_{(TRM,NTM)}$	3.74	.05	.05

With respect to the perception of Task-Relevant Change, only expertise was found to be significant ($F = 7.23$, $p = 0.01$), however a review of the partial Eta statistic indicated the effect was minimal ($\eta_p^2 = 0.03$). Additionally, none of the socio-demographic variables were found to significantly influence consumers' perceptions of Non-Task-Relevant Change.

Although only main effects were found to be significant, the interaction effect between the two manipulated levels of the dimensions ($INT_{TRM,NTM}$), was closely approaching significance for the perception of Non-Task-Relevant Change ($p = 0.05$). However, the size of the effect of this interaction was small ($\eta_p^2 = 0.05$).

5.5 EFFECTS OF CHANGE ON AROUSAL

As purported in Chapter Three, Hypotheses One and Two suggested that both Task-Relevant Change and Non-Task-Relevant Change positively influence the Arousal in the environment. To examine the effects of Task-Relevant Change and Non-Task-Relevant Change on Arousal, a two-stage hierarchical regression was undertaken in which the three covariate variables identified in Chapter Three to influence Arousal (Rational Involvement, Affective Involvement, and Patronage Frequency – see Section 3.4) were entered into the first stage of the regression, followed by the perception measures for both change dimensions, entered as independent variables. Arousal was entered as the dependent variable. The results of this analysis are presented in Table 5-13.

Table 5-13 - Results of Two-Stage Hierarchical Regression Analysis for Arousal

		Arousal	
		Standardised β	***sig***
Stage One *(Covariates)*			
Patronage Frequency		.00	.96
Rational Involvement		-.07	.26
Affective Involvement		.14	.02
ΔR^2		***.02***	***.12***
Stage Two *(Independent Variables)*			
Perception of Task-Relevant Change		-.10	.20
Perception of Non-task Relevant Change		.20	.01
ΔR^2		***.03***	***.03***
Overall	R^2	*.05*	
	F	*2.70*	*.02*
	df	*5*	

The R^2 value for the covariates was not significant (R^2 = .02, p = .12), indicating that the covariates had no effect on Arousal. However, Affective Involvement was reported to have a significant influence on Arousal (β = .14, p = .02).

The addition of the perception of change measures to the regression model was significant (ΔR^2 = .03, p = .02). Specifically, while the perception of Non-Task-Relevant Change was found to have a significant effect on Arousal (β = .20, p = 0.01), no such effect was found for Task-Relevant Change (β = -.10, p = .20). Additionally, the total variance explained by the regression model was very small (5%), suggesting that change

accounted for only a minimal amount of the Arousal induced by the environment. Consequently, Hypothesis One was not supported and Hypothesis Two was supported.

5.6 EFFECTS OF AROUSAL ON PLEASURE AND DOMINANCE

Hypotheses Three and Four hypothesised relationships between Arousal and Pleasure, and Arousal and Dominance. While Hypothesis Four argued that Arousal was expected to have a direct negative effect on Dominance, Hypothesis Three purported a conditional relationship between Arousal and Pleasure based on a consumer's a-priori experiences. Specifically, it was predicted that as a consumer's A-priori Experience increased, the degree of Arousal from the environment is perceived as unpleasant. Conversely, as a consumer's A-priori Experience decreased, the degree of Arousal from the environment is perceived as more pleasant.

To examine these hypotheses a two-stage hierarchical regression was conducted for dominance and a three-stage hierarchical regression was conducted for pleasure. Prior to conducting the analysis, an interaction variable was first created to capture the moderating effect of A-priori Experience on the effect of Arousal. This variable comprised the product of centred Arousal and centred A-priori Experience (referred herein as $INT_{EA,AE}$). Following the creation of the interaction variable, the covariate measures were entered into the first stage of the regression model for each dependent variable, followed in the second stage by the applicable direct effects (Pleasure - Arousal and A-prior Experience; Dominance - Arousal). For Pleasure, a third stage comprising the interaction variable ($INT_{EA,AE}$) was included.

The results of these analyses are presented in Table 5-14 and Table 5-15.

Table 5-14 - Results of Three-Stage Hierarchical Regression Analyses for Pleasure

		Pleasure	
		Standardised β	***sig***
Stage One *(Covariates)*			
Self-Efficacy		.03	.62
Optimal Stimulation Level		-.03	.58
Desire for Difference		.13	.03
Desire for Familiarity		.14	.03
ΔR^2		***.04***	***.02***
Stage Two *(Direct Effects)*			
Arousal		.37	.00
A-priori Experience		.08	.14
ΔR^2		***.14***	***.00***
Stage Three *(Moderation Effect)*			
$INT_{EA,AE}$		-.25	.00
ΔR^2		***.04***	***.00***
Overall	R^2	*.22*	
	F	*11.47*	*.00*
	df	*7*	

The results of these analyses show that the R^2 value for the covariates was significant for pleasure (R^2 = .04, p = .02), however only Desire for Difference (β = .13, p = .03) and Desire for Familiarity (β = .14, p = .03) were found to significantly influence Pleasure.

The addition of the two direct measures (Arousal and A-priori Experience) was significant (ΔR^2 = .14, p < .001); however the addition of the Interaction terms was also significant (ΔR^2 = .04, p < .001) suggesting the direct effects alone were not fully explaining their influence on Pleasure. Given the negative co-efficient for the interaction term (β = -.25), the combined effect of Arousal and A-priori Experience was found to negatively influence pleasure. Overall, the regression model explained 22% of the variance in Pleasure, indicating that Arousal and A-priori Experience were indeed contributing factors to the Pleasure induced within a change environment. Therefore, Hypothesis Three was supported.

Table 5-15 - Results of Two-Stage Hierarchical Regression Analyses for Dominance

		Dominance	
		Standardised β	***sig***
Stage One *(Covariates)*			
Self-Efficacy		.10	.10
Optimal Stimulation Level		.01	.83
Desire for Difference		-.06	.34
Desire for Familiarity		.12	.05
ΔR^2		***.02***	***.19***
Stage Two *(Direct Effects)*			
Arousal		.21	.00
ΔR^2		***.05***	***.00***
Overall	R^2	*.07*	
	F	*4.05*	*.00*
	df	*5*	

The results of the two stage hierarchical regression for Dominance show that the R^2 value for the covariates was not significant (R^2 = .02, p = .19). The addition of Arousal, however, was significant (ΔR^2 = .05, p < .001). Contrary to the effect predicted, however, the positive co-efficient (β = .21) indicates Arousal has a positive effect on Dominance. Therefore, Hypothesis Four received only partial support.

In addition, only a small amount (7%) of the variance in Dominance was explained by the regression model, suggesting that Arousal had only a minor effect on the degree of Dominance induced by the environment.

5.7 EFFECTS OF EMOTION ON FLOW AND VALUE

To test the hypothesised effects of emotion on the remaining response variables a series of multiple regressions were conducted:

Effects of Pleasure Arousal and Dominance on Flow

Hypotheses Five, Six and Seven hypothesised that there was a positive effect for each of the three emotional dimensions on the Degree of Flow Felt. To test these hypotheses, multiple regression was undertaken, whereby Arousal, Pleasure and Dominance were

entered as independent variables with the Degree of Flow Felt as the dependent variable. The results of this analysis are presented in Table 5-16.

Table 5-16 - Results of Regression Analysis for Flow

	Flow	
	Standardised β	***sig***
Arousal	.09	.05
Pleasure	.70	.00
Dominance	-.00	.95
R^2	*.54*	
F	*112.77*	*.00*
df	*3*	

The results of the analysis show that the R^2 value was significant for Flow and that the emotional dimensions explained 54% of the variation in Flow (R^2 = .54, p < .001). Arousal (β = .09, p = .05) and Pleasure (β = .70, p < .001) had a positive effect on Flow, however, Dominance had no significant effect. Consequently, while Hypotheses Five and Six were supported, Hypothesis Seven was not.

Effects of Pleasure and Flow on Hedonic Value

Hypotheses Eight and Ten predicted that there were positive relationships between Pleasure and Hedonic Value as well as Flow and Hedonic Value. To test the hypotheses, multiple regression was undertaken, whereby Pleasure and Flow were entered into the regression as independent variables with Hedonic Value as the dependent variable. The results of this analysis are presented in Table 5-17.

Table 5-17 - Results of Regression Analysis for Hedonic Value

	Hedonic Value	
	Standardised β	***sig***
Pleasure	.17	.01
Flow	.58	.00
R^2	*.50*	
F	*110.45*	*.00*
df	*2*	

The results of the analysis provide support for the hypotheses: both Pleasure (β = .17, p = .01) and Flow (β = .58, p < .001) had a significant effect on Hedonic Value. Moreover, Pleasure and Flow explained 50% of the variation in Hedonic Value (R^2 = .50, p < .001). Therefore Hypotheses Eight and Ten were both supported.

Effects of Dominance and Flow on Utilitarian Value

Hypotheses Nine and Eleven predicted that both Dominance and the Degree of Flow Felt have a positive effect on Utilitarian Value. To test the hypotheses the amalgamated Utilitarian Value scale was applied as the dependent variable in multiple regression with Dominance and Flow entering the model as independent variables. The results of this analysis are presented in Table 5-18.

Table 5-18 - Results of Regression Analysis for Utilitarian Value

	Utilitarian Value	
	Standardised β	***sig***
Dominance	.04	.43
Flow	.67	.00
R^2	*.46*	
F	*122.43*	*.00*
df	*2*	

The results of the regression analysis indicate that a significant amount of variation was explained by the model (R^2 = .46, p <.001). Furthermore, analysis of the effects of Dominance and Flow on Utilitarian Value identified that while Flow was a significant influence on Utilitarian Value (β = .67, p < .001), Dominance had no such effect (β = .04, p = .43). Consequently, Hypothesis Nine was not supported while Hypothesis Eleven was.

In addition to the amalgamated Utilitarian Value Scale, the two distinct sub-scales for Utilitarian Value were also examined (see Table 5-19). Similar to the amalgamated variable, the two dimensions were applied in two separate multiple regressions as the dependent variables. Analysis of the respective R^2 values indicated that a significant amount of variation was explained in both sub-scales (Process Value – R^2 = .54, p < .001; Outcome Value – R^2 = .54, p < .001). Moreover, as with the amalgamated variable,

analysis of the two sub-scales for Utilitarian Value report that Flow had a significant effect on both sub-scales while Dominance had no significant effect on either sub-scale.

Table 5-19 - Results of Regression Analyses for the Sub-scales of Utilitarian Value

	Process Value		**Outcome Value**	
	Standardised β	***sig***	***Standardised β***	***sig***
Dominance	.03	.55	.04	.43
Flow	.63	.00	.55	.00
R^2	*.41*		*.32*	
F	*99.91*	*.00*	*66.42*	*.00*
df	*2*		*2*	

5.8 EFFECTS OF VALUE ON REACCEPTANCE

Effect of Value on Attitude toward Re-patronage

Hypotheses Twelve and Thirteen hypothesised a positive effect for both Utilitarian Value and Hedonic Value on Attitude toward Re-patronage. To test the hypotheses multiple regression was undertaken, whereby Hedonic Value and Utilitarian Value were entered as independent variables with Attitude toward Re-patronage entering the model as the dependent variable. The results of this analysis are presented in Table 5-20.

Table 5-20 - Results of Regression Analysis for Attitude toward Re-patronage

	Attitude toward Re-patronage	
	Standardised β	***sig***
Hedonic Value	.59	.00
Utilitarian Value	.25	.00
R^2	*.56*	
F	*184.11*	*.00*
df	*2*	

The results of the R^2 value indicates that the model explained a significant amount of variation (R^2 = .56, p = .00). Results of the multiple regression indicate that both Hedonic Value (β = .59, p < .001) and Utilitarian Value (β = .25, p < .001) had positive effects on Attitude toward Re-patronage. Therefore, both Hypotheses Twelve and Thirteen were supported.

Again, in addition to the amalgamated Utilitarian Value scale, the two distinct sub-scales for Utilitarian Value were also examined. Analysis of the effects of the two sub-scales of Utilitarian Value revealed similar results: R^2 remains unchanged ($R^2 = .56$, $p < .001$) and, alongside Hedonic Value, both sub-scales demonstrated significant effects on Attitude toward Re-patronage. The results of the analysis for the two sub-scales of Utilitarian Value are presented in Table 5-21.

Table 5-21 - Results of the Regression Analyses for Attitude toward Re-patronage

	Re-patronage Intention	
	Standardised β	***sig***
Hedonic Value	.32	.00
Utilitarian Process Value	.42	.00
Utilitarian Outcome Value	.26	.00
R^2	*.56*	
F	*122.34*	*.00*
df	*3*	

Effects of Value and Attitude toward Re-patronage on Re-patronage Intention

The final three hypotheses predicted that Re-patronage Intention was positively influenced by Attitude toward Re-patronage as well as both Hedonic and Utilitarian Value. The results of this analysis are presented in Table 5-22.

Table 5-22 - Results of Regression Analysis for Re-patronage Intention

	Re-patronage Intention	
	Standardised β	***sig***
Hedonic Value	.11	.03
Utilitarian Value	.27	.00
Attitude toward Re-patronage	.54	.00
R^2	*.69*	
F	*213.64*	*.00*
df	*3*	

Results of the analysis indicate that the model explained a significant amount of variation in Re-patronage Intention ($R^2 = .69$, $p < .001$). Additionally, the results provide support for the hypotheses: Hedonic Value ($\beta = .11$, $p = .03$), Utilitarian Value ($\beta = .27$, $p < .001$) and Attitude toward Re-patronage ($\beta = .54$, $p < .001$) all have positive effects on Re-

patronage Intention. Post hoc testing (using regression analysis) of the individual effects of the dimensions of Utilitarian Value indicate that only Utilitarian Process Value (β = .25, p < .00) had a significant effect on Re-patronage Intention (see Table 5-23). However, analysis of the correlation between the independent variables indicated that Utilitarian Process Value and Attitude toward Re-patronage suffered from multi-collinearity. Consequently, evaluation of the Utilitarian Value sub-scales provides little additional insight.

Table 5-23 - Results of Regression Analysis for Re-patronage Intention using Utilitarian sub-scales

	Re-patronage Intention	
	Standardised β	***sig***
Hedonic Value	.07	.07
Utilitarian Process Value	.25	.00
Utilitarian Outcome Value	.03	.52
Attitude toward Re-patronage	.58	.00
R^2	*.69*	
F	*162.47*	*.00*
df	*4*	

A summary of the hypotheses tested in this study alongside the subsequent results of the analyses is provided in Table 5-24.

Table 5-24 - Summary of Hypothesis Tests Results

Hypothesis	Supported
H_1: Task-relevant change has a positive effect on arousal.	✗
H_2: Non-task-relevant change has a positive effect on arousal.	✓
H_3: A-priori experience with the web-site moderates the relationship between arousal and pleasure in such a way that (a) arousal induced by a change is more pleasant for negative a-priori experiences; however (b) arousal induced by the change is less pleasant for positive a-priori experiences.	✓
H_4: There is a negative relationship between the arousal induced by change and dominance.	$✓_p$
H_5: There is a positive relationship between pleasure and the degree of flow felt.	✓
H_6: There is a positive relationship between arousal and the degree of flow felt.	✓
H_7: There is a positive relationship between dominance and the degree of flow felt.	✗
H_8: There is a positive relationship between pleasure and hedonic value.	✓
H_9: There is a positive relationship between dominance and utilitarian value.	✗
H_{10}: There is a positive relationship between flow and hedonic value.	✓
H_{11}: There is a positive relationship between flow and utilitarian value.	✓
H_{12}: There is a positive relationship between utilitarian value and attitude toward re-patronage.	✓
H_{13}: There is a positive relationship between hedonic value and attitude toward re-patronage.	✓
H_{14}: There is a positive relationship between utilitarian value and re-patronage intention.	✓
H_{15}: There is a positive relationship between hedonic value and re-patronage intention.	✓
H_{16}: There is a positive relationship between attitude toward re-patronage and re-patronage intention.	✓

$✓_p$ indicates a partial support for the hypothesis.

5.9 PATH ANALYSIS OF THE CONCEPTUAL MODEL

The final stage of data analysis was to simultaneously assess the relationships outlined in the conceptual model using path analysis. So far this chapter has examined the relationships between Change and Arousal, as well as the effects of Arousal on Pleasure and Dominance, the effects of Pleasure and Dominance on Flow and Value, and the effects of Value on Attitude toward Re-patronage. However, the dependence relationships between these constructs, and their relative importance to one another, have not yet been investigated. To address these analyses, Path Analysis (using the Maximum Likelihood estimation procedure) is used.

5.9.1 Model Evaluation and Refinement

In assessing the conceptual model in its entirety, model fit was assessed using χ^2 (including χ^2/df (relative χ^2)), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the Akaike information criterion (AIC).

These four, while all measuring fit, represent four subsections of fit relative to this study. χ^2 is a fundamental measure of fit assessing the difference between observed data and theorised/modelled data. As such, the fit of the proposed model to a model for observed values can be assessed through χ^2. However, model complexity and sample size reduce the confidence that the χ^2 statistic provides a reliable measure of fit (e.g. see Kline, 2005). As such, three further indices, which utilise the χ^2 statistic, are adopted to provide a well-rounded assessment of fit. First, RMSEA is an absolute measure of fit whereby the proposed model is compared to the saturated model – a model in which all possible paths are believed to exist (Lee & Kim, 2002). RMSEA reflects a lack of fit as, in a good model, both the proposed and saturated model should explain similar covariance. Subsequently, good models are reflected in small (< 0.1) RMSEA scores (Kenny, 2011). Second, CFI is an incremental measure of fit whereby the fit of the χ^2 of the proposed model and the χ^2 of the independence model – a model where the variables are not correlated, are compared (Lee & Kim, 2002). In doing so, CFI represents the degree of difference between an empty model (with no effects) and the proposed model (with hypothesised effects). As such, a good model under the CFI has considerably more explanatory ability than the independence model, and is considerably different from the independence model (Kline, 2005). Consequently, large CFI scores (> 0.9) are reflective of a good model (Lee & Kim, 2003). Finally, the AIC is a parsimonious comparative

measure of fit, whereby the comparison between the independence model and the proposed model is adjusted for the relative saturation of the overall model (i.e. the number of parameters proposed) (Kenny, 2011). AIC is only meaningful when two different models are being estimated, as lower values indicate a better fit, so the model with the lowest AIC is the best fitting model (Kline, 2005). A summary of the four fit indices is presented in Table 5-25.

Table 5-25 - Summary of Model Fit Indices

Index	Short Description
χ^2	Absolute Measure of Fit. Underlying measure of difference between the observed covariance matrix and model covariance matrix. Measure of whether the modelled data is a good fit with the observed data.
RMSEA	Absolute Measure of Fit. Measure of difference between the saturated (full paths) model and the proposed model. Similar levels of explanatory power from fewer relationships indicates a good model. RMSEA should be small.
CFI	Incremental Measure of Fit. Non-central comparison (measure of difference) of the proposed model to the independence model – a model with no correlations between variables. The proposed model should be different to the independence model to be a good model. CFI should be large.
AIC	Comparative Measure of Fit AIC is used to describe the amount of information lost when a particular model attempts to describe reality. Provides opportunity for competing models to be ranked. The best fitting model will demonstrate the lowest AIC.

In addition to the conceptual model, two competing models were examined in this section. The first model (the Optimised Perceptions Model) optimised the conceptual model utilised to the test the hypotheses by including the perception measures as independent variables. The second model (the Optimised Treatment Model) optimised a model that includes the two treatment conditions.

As the moderating effect had been examined in previous analyses, only direct effects were examined for the purposes of model refinement and evaluation. Consequently, all three models excluded the moderating variable ($INT_{EA,AE}$).

Evaluation of the full conceptual model (see Figure 5-3) indicated that the model had poor fit (χ^2 = 316.12, $p < .001$; CFI = .83; RMSEA = .19). Consequently, the conceptual model did not fit the data well. However, a number of possible model improvements were identified through the modification indices.

In total, eleven modifications were applied to the optimised model. Specifically, seven new relationships were adopted while four relationships were removed. All constructs, however, were retained. Examination of the fit indices for the resulting Optimised Perceptions Model (Figure 5-4) showed a very large improvement over the Conceptual Perceptions Model (CFI = .99, RMSEA = .04). The χ^2/df ratio, which represents the relative chi-square (a measure of fit reduction through removing one or more paths), of 1.57 represented good model fit. Additionally, the AIC indices indicated that the Optimised Perceptions Model fitted the data better than the Conceptual Perceptions Model (AIC_{CPM} = 370.12, AIC_{OPM} = 100.49). Differences between the χ^2 values for the competing models confirmed that the Optimised Perceptions Model fitted the data significantly better than the Conceptual Perceptions Model ($\Delta\chi^2$ = 281.73, df = 6, $p < .001$).

Initially, the Conceptual Treatment Model (the conceptual model utilising the treatment variables) demonstrated poor fit (χ^2 = 202.89, $p < .001$; CFI = .88; RMSEA = .15), although marginally better fit than the Conceptual Perceptions Model. As with the Conceptual Perceptions Model, a number of modifications were applied to the Conceptual Treatment Model utilising the modification indices. Specifically, fourteen modifications were applied to develop the optimised model: ten relationships were integrated into the model and four relationships were removed. As with the Optimised Perceptions Model, all constructs were retained. The resulting Optimised Treatment Model (see Figure 5-5) demonstrated excellent fit with the data (χ^2 = 29.44, $p < .001$; CFI = .99; RMSEA = .04; χ^2/df = 1.40). As with the Perceptions models, the AIC indices indicated that the Optimised Treatment Model fitted the data considerably better than the Conceptual Treatment Model (AIC_{CTM} = 256.89, AIC_{OTM} = 99.44), and analysis of the change in χ^2 indicated the difference was significant ($\Delta\chi^2$ = 286.68, df = 7, $p < .001$). The results of these analyses are presented in Table 5-26.

All models helped to confirm the earlier findings outlined in this chapter. Non-Task-Relevant Change was positively related to arousal. Task-Relevant Change was found to

have no effect on Arousal. Arousal had a positive effect on Dominance and a negative effect on Pleasure. Pleasure had positive effects on Flow, however Dominance had no effect on Flow. Flow positively influenced Utilitarian Value, but Dominance did not. Both Flow and Pleasure positively influenced Hedonic Value. Both Hedonic Value and Utilitarian Value positively influenced Attitude toward Re-patronage and Re-patronage Intention. Finally, Attitude toward Re-patronage positively influenced Re-patronage Intention.

The effect of Arousal on Flow, however, was not consistent across all three path model analyses. In particular, while Arousal was found to be significant for the Conceptual Model and Optimised Treatment Model, for the Optimised Perceptions Model the path between Arousal and Flow was removed due to the non-significance of the path coefficient.

Overall, both optimised models demonstrated excellent levels of fit with the data. Moreover, both models demonstrated almost identical fit with the data. However, while the Optimised Perceptions Model provided a more parsimonious fit to the data, the AIC scores, used to rank competing models, identified that the Optimised Treatment Model provided a marginally better fit with the data. Additionally, the relative chi-square measure also suggested the Optimised Treatment Model demonstrated a slightly better fit than the Optimised Perceptions Model.

Table 5-26 - Path Analysis (Comparative Results of Competing Models)

Standardised Regression Weights	**Estimates**		
	PM	**OPM**	**OTM**
EA <---------- TR	-.10	n/a	n/a
EA <---------- NT	.23	.17	n/a
EA <---------- *e3*	.87	.87	.89
EP <---------- TR	n/a	-.57	-.23
EP <---------- NT	n/a	.12	n/a
EP <---------- EA	.37	.37	.37
EP <---------- *e1*	1.23	.88	1.15
ED <---------- TR	n/a	-.27	-.16
ED <---------- EA	.21	.22	.21
ED <---------- *e4*	.56	.52	.55
FL <---------- NT	n/a	.15	.09
FL <---------- EA	.09	n/a	.09
FL <---------- EP	.70	.75	.70
FL <---------- ED	.00	n/a	n/a
FL <---------- *e2*	.47	.45	.46
HV <---------- TR	n/a	.22	.12
HV <---------- EA	n/a	n/a	.12
HV <---------- EP	.17	.28	.20
HV <---------- ED	n/a	n/a	-.09
HV <---------- FL	.58	.56	.56
HV <---------- *e5*	.75	.69	.70
UV <---------- TR	n/a	-.22	-.08
UV <---------- EP	n/a	.31	.41
UV <---------- ED	.04	n/a	n/a
UV <---------- FL	.67	.38	.37
UV <---------- *e6*	1.07	.83	.89
AR <---------- EP	n/a	.34	.34
AR <---------- ED	n/a	-.15	-.15
AR <---------- HV	.25	.15	.15
AR <---------- UV	.59	.45	.45
AR <---------- *e7*	1.12	1.00	1.00
RI <---------- HV	.09	.09	.09
RI <---------- UV	.25	.25	.25
RI <---------- AR	.58	.58	.58
RI <---------- *e8*	.70	.70	.70
Correlations			
TR <----------> NT	.61	.61	.00
e1 <----------> e4	n/a	.27	.34

Squared Multiple Correlations (R^2)			
Arousal	.03	.03	.00
Pleasure	.13	.37	.19
Dominance	.04	.11	.07
Flow	.54	.55	.55
Hedonic Value	.50	.54	.54
Utilitarian Value	.45	.57	.55
Attitude toward Re-patronage	.55	.60	.60
Re-patronage Intention	.69	.68	.69
Goodness of Fit Indicators			
$\chi 2$	316.12	34.49	29.44
df	28	22	21
p	.000	.000	.000
$\chi 2/df$	11.29	1.57	1.40
CFI	.83	.99	.99
RMSEA	.16	.04	.04
AIC	307.12	100.49	99.44

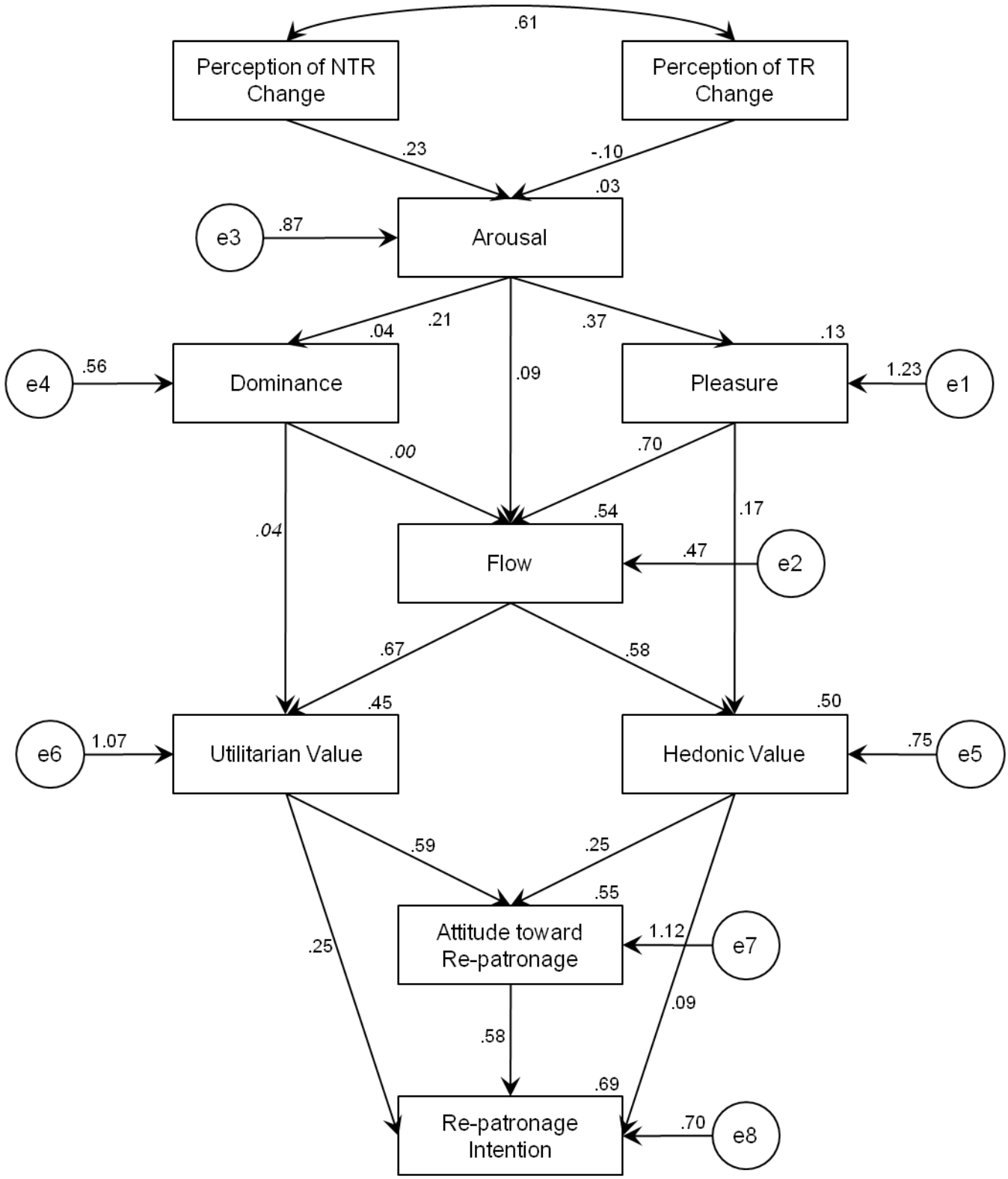

Figure 5-3 – Proposed Conceptual Model Using Perceived Measures of Change

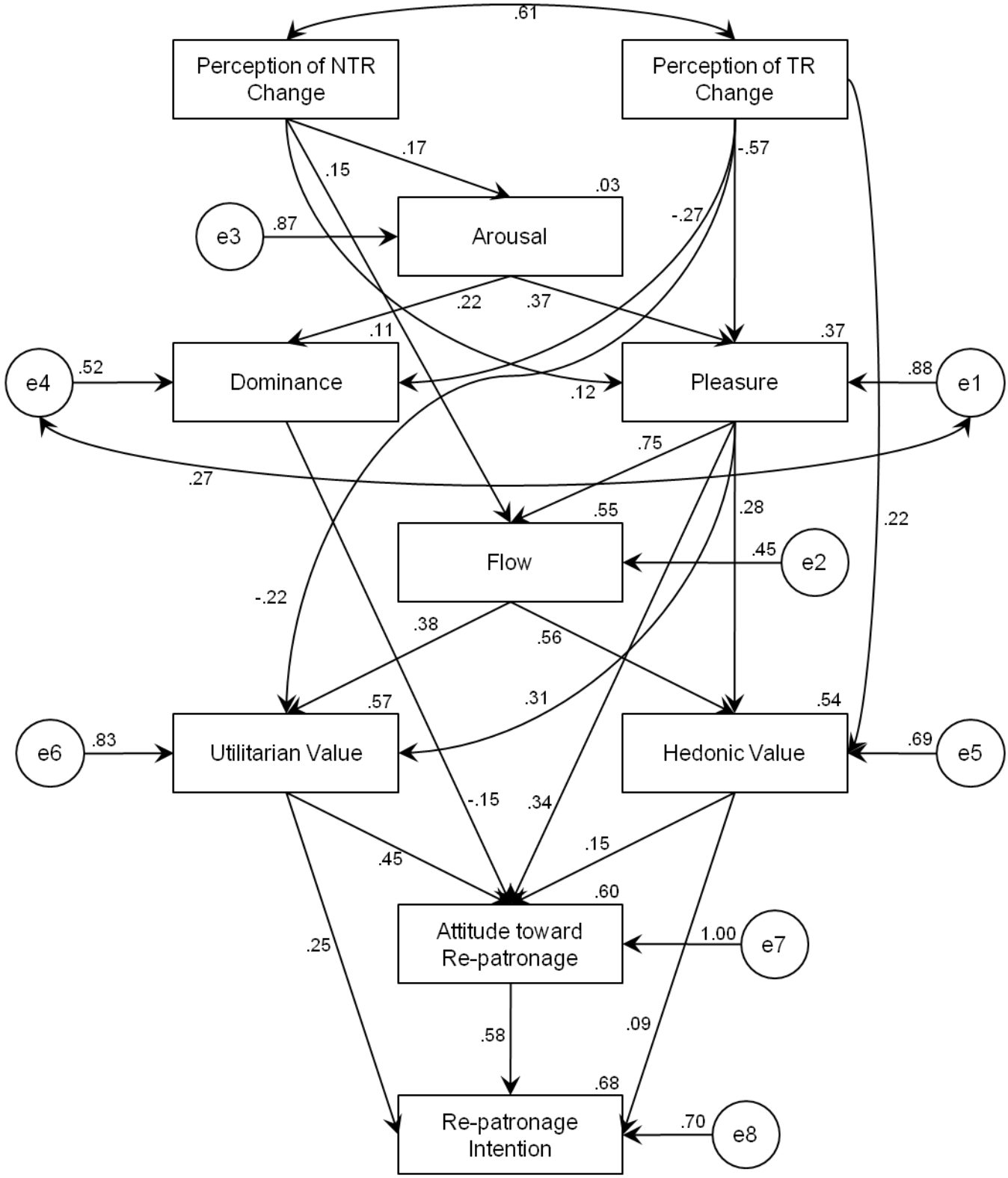

Figure 5-4 – Optimised Conceptual Model Using Perceived Measures of Change

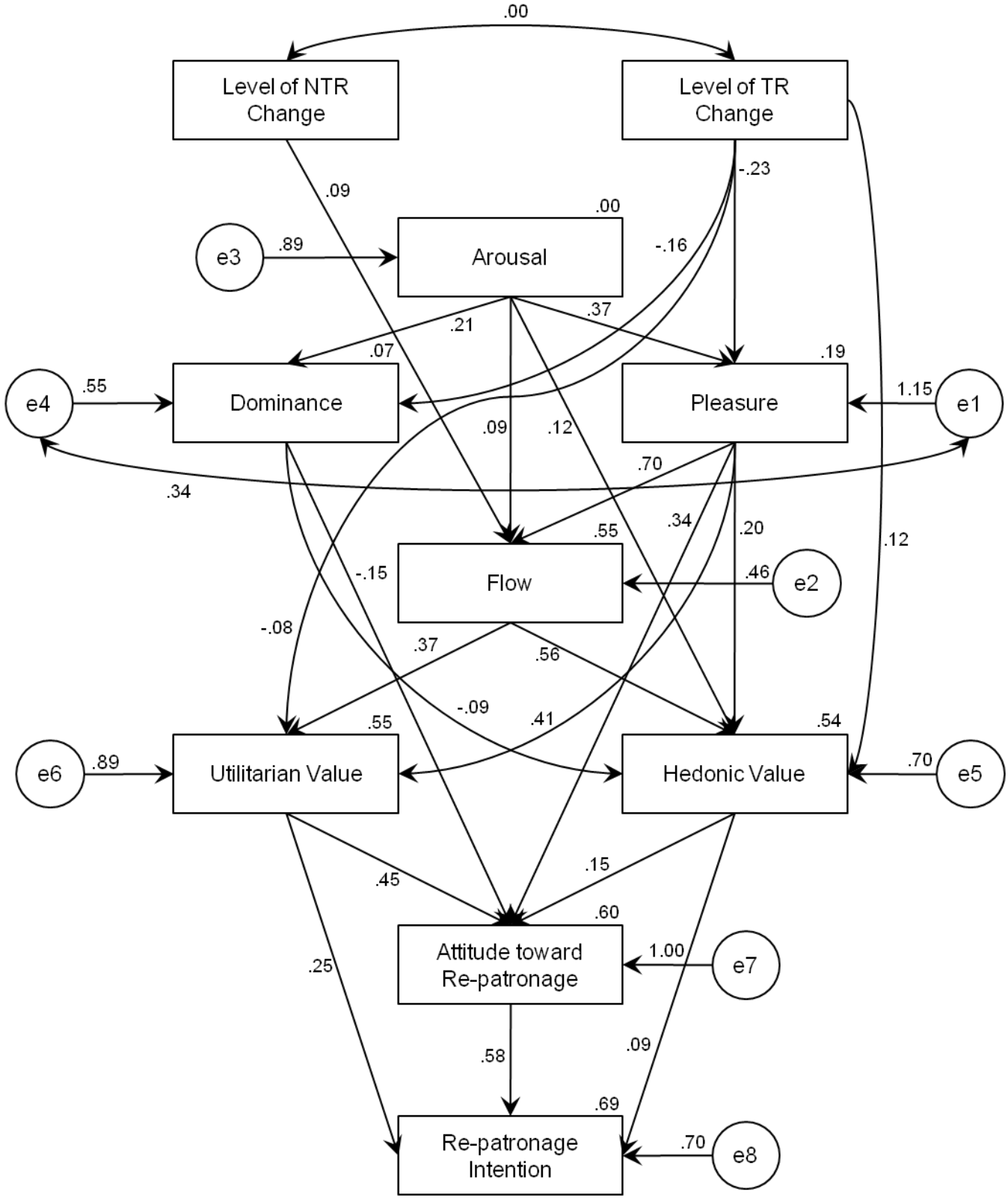

Figure 5-5 – Optimised Conceptual Model Using Manipulated Levels of Change

5.10 CHAPTER SUMMARY

The primary purpose of this chapter was to examine the sixteen individual research hypotheses that were developed in Chapter Three. Although a full discussion of the results from these analyses is provided in Chapter Six, the findings of this chapter can be summarised as follows:

The first two hypotheses were related to the effects of Change on Arousal. Specifically, both Non-Task-Relevant Change and Task-Relevant Change were hypothesised to directly influence Arousal. Analysis revealed that only Non-Task-Relevant Change had an effect on Arousal. Consequently, *Hypothesis One was rejected*, but *Hypothesis Two was supported*.

Hypotheses Three and Four were related to the relationship between Arousal and the two remaining emotional dimensions – Pleasure and Dominance. In particular, Arousal was hypothesised to have a negative effect on Dominance, however the effect of Arousal on Pleasure was hypothesised to be moderated by the consumer's A-priori Experience. A negative interaction effect was identified between Arousal and A-priori Experience for Pleasure, thus *Hypothesis Three was supported*. Furthermore, while Dominance was found to be influenced by Arousal, the relationship was positive, providing only *partial support for Hypothesis Four*.

Hypotheses Five through Eleven were concerned with the relationships involving the emotional variables and Flow and their effects on Hedonic and Utilitarian Value. Pleasure, Arousal, and Dominance were all hypothesised to positively influence Flow, however, support could only be found for the effects of Pleasure and Arousal on Flow. Consequently, *Hypothesis Five was supported*, *Hypothesis Six was supported*, but *Hypothesis Seven was rejected*. The hypothesised relationships between Pleasure and Hedonic Value and Flow and Hedonic Value were found to be significant, thus *Hypotheses Eight and Ten were supported.* Conversely, no effect of Dominance on Utilitarian Value could be found and *Hypothesis Nine was rejected*. However, Flow was found to demonstrate a significant effect on Utilitarian Value, providing *support for Hypothesis Eleven.*

The final set of five hypotheses focused on the effects of value on re-acceptance. Overall, the effects of value on re-acceptance were supported with evidence of significant

relationships between Hedonic Value and Attitude toward Re-patronage, Utilitarian Value and Attitude toward Re-patronage, Hedonic Value and Re-patronage Intention, Utilitarian Value and Re-patronage Intention, and Attitude toward Re-patronage and Re-patronage Intention. Consequently, *Hypotheses Twelve, Thirteen, Fourteen, Fifteen and Sixteen were all supported*.

In addition to the hypothesis testing, model evaluation and refinement provided further insight into the structure for responses to change. In particular, a number of non-hypothesised paths were introduced into the model to provide greater depth of understanding about consumer responses to change; most notably, the direct influence of Task-Relevant Change on both Pleasure and Dominance.

In the final chapter of this thesis, the findings are discussed in greater detail.

6 DISCUSSION

6.1 INTRODUCTION

This chapter concludes this study with a discussion of the major findings of the current research, followed by the contributions and implications arising from those findings. In addition, the limitations evident within the current research are provided as well as a number of future research avenues for the continued study of change in retailing.

6.2 RESEARCH FINDINGS

6.2.1 Summary of Research Purpose

Although prolific across the Internet, little research activity has explored the role of change in online retailing. Specifically, how consumers respond to changing web-sites has received no research attention within the existing literature. To address this deficiency, the current study examined consumer response in the face of change within the commercial retail web-site. It did so across two dimensions of change; the task-relevant dimension and the non-task-relevant dimension.

Given that the retail web-site can be viewed as an online environment (Demangeot & Broderick, 2007; Rosen & Purinton, 2004; Williams & Dargel, 2004), the conceptual model developed in this study adopted the traditional SOR paradigm (see Donovan & Rossiter, 1982) from environmental psychology to propose that both change dimensions stimulate the organism response, which, in turn, induces a behavioural response. Specifically, the model proposed that the change dimensions influences the emotional response which in turn influences value, and then subsequently, value influences the overall re-acceptance of the modified web-site. To test the dependence relationships hypothesised in the conceptual model, an online experiment was conducted. In addition, the overall model was evaluated using Path Analysis and based upon the modification suggestions, competing models were developed and evaluated.

6.2.2 Effects of the Independent Variables on Arousal

Building upon the web-site typology literature, this study posited that change in the online environment could be conceptualised along two dimensions. Based on the web-site typology presented by Eroglu *et al.* (2001), these dimensions comprised (1) a perception of Task-Relevant Change and (2) a perception of Non-Task-Relevant Change. Both these two change dimensions were predicted to have an effect on Arousal, a dimension of the PAD emotional paradigm.

Specifically, the first two hypotheses stated that Task-Relevant Change and Non-Task-Relevant Change had a positive direct effect on the state of Arousal, as both types of change were expected to provide an increase in the level of environmental stimulation.

Results of a regression analysis found that a significant linear relationship did exist between Non-Task-Relevant Change and Arousal, although the overall size of this effect was small. As hypothesised, this relationship was positive indicating that as Non-Task-Relevant Change increases the level of Arousal also increases. Consequently, Arousal is positively influenced by non-task-specific changes. This finding is well aligned to the previous psychology literature that suggests a change to a stimulus increases the stimulation provided by that stimulus (e.g. Brewer & Treyens, 1981; Berlyne, 1960). Additionally, the current finding supports the contention from environmental psychology that increasing the information load of an environment increases the perceived Arousal in the environment (Donovan & Rossiter, 1982; Kaltcheva & Weitz, 2006).

A significant relationship which supports the notion that Task-Relevant Change increased Arousal could not be found. Such a finding is surprising, particularly since changes to the Task-Relevant dimension of the web-site, which reflects the parts of the web-site that facilitate task-performance (Eroglu *et al.*, 2001), were expected to require behaviour that contradicts that stored in memory (Brewer & Treyens, 1981) and provide new environmental information (Berlyne, 1960), resulting in greater environment stimulation (Kaltcheva & Weitz, 2006).

While in most previous studies, environmental stimuli have demonstrated significant effects on the emotional state of Arousal (e.g. Baker, *et al.*, 1992; Eroglu *et al.*, 2003; Mummalaneni, 2005), others have found limited arousal inducing effects from environmental stimuli (e.g. Areni & Kim, 1994; Ballantine & Fortin, 2009). Therefore,

given the small effect size for Non-Task-Relevant Change on Arousal and the lack of a relationship between Task-Relevant Change on Arousal, it can be argued that change in an online banking environment does not provide enough stimulation to induce Arousal.

In addition to the main research findings, analysis of the treatment conditions as independent variables demonstrated that neither change dimension directly influenced Arousal, supporting the notion that change in the online banking environment does not provide enough stimulation to influence Arousal.

6.2.3 Effects of Change and Arousal on Pleasure and Dominance

The second set of research hypotheses outlined in this study were concerned with the effects of Arousal on both Pleasure and Dominance. In particular, Arousal was hypothesised to have a conditional relationship with Pleasure and a negative relationship with Dominance.

Arousal on Pleasure

Building on the findings of Kaltcheva and Weitz (2006) and Wang *et al.* (2007), the effect of Arousal on Pleasure was expected to be moderated by A-priori Experience with the existing web-site. Specifically, as positive A-priori Experiences increased, Arousal from the environment was expected to have a negative effect on Pleasure. Conversely, as positive A-priori Experiences decreased, Arousal from the environment was expected to have a positive effect on Pleasure.

Results of the analysis support the effect of Arousal and A-priori Experience on Pleasure. Similar to the findings from Wang *et al.* (2007) and Kaltcheva and Weitz (2006), the finding shows that only under certain conditions is Arousal from the environment considered to be a source of pleasure. Specifically, in-line with this hypothesis, as Arousal increased, when A-priori Experience increased (decreased) the level of Pleasure reported to be provided by the environment decreased (increased), demonstrating that through the emotional state of Arousal, positive experiences with the existing web-site reduce the extent of Pleasure provided by a modified web-site. On the surface this finding seems ideal, however, there is a noteworthy issue when considering these findings; specifically, the predicted relationship was between Arousal *induced by change* and Pleasure. Given the minimal effect of Change on Arousal, the Arousal reported by respondents to be provided by the environment was not induced by change as the

hypothesis purported. Consequently, within a changed environment, the Arousal reported to be provided by the environment (irrespective of its source) is perceived to be less pleasant when consumers hold positive previous experiences with the existing online environment.

Arousal on Dominance

With respect to Dominance, Arousal induced by change was hypothesised to result in negative attributions of Dominance, that is, an increase in the stimulation from a changed environment was expected to result in decreased feelings of control (Dominance). Results of the analysis support a relationship between Arousal and Dominance; however, this relationship was positive, meaning that Arousal actually increases a consumer's feelings of Dominance. Therefore, based on this finding, a consumer holds a stronger sense of control over their actions as the stimulation from the environment increases.

This finding appears relatively counter-intuitive, particularly since novel information projected by the environment should interfere with schematic memory and restrict programmatic (memory-based) behaviour (Brewer & Treyens, 1981), thus creating obstacles for shopping behaviour (Kaltcheva & Weitz, 2006; Matilla & Wirtz, 2008). However, as with Pleasure, there is a noteworthy issue when considering these findings; specifically, the predicted relationship was between Arousal *induced by change* and Dominance. As the effect of change on Arousal was minimal, the validity of evaluating the original hypothesis is questionable. Therefore, as an alternative explanation of the findings, while the design of the online environment is able to produce sources of restrictive or facilitative stimulation, it is feasible that the Arousal from the online environment in general is not as restrictive as the Arousal that was expected to occur due to Change. Moreover, as respondents reported themselves to be predominantly high in Internet self-efficacy (see Section 5.2) it is feasible that the level of Arousal provided by the environment, irrespective of Change, is insufficient to restrict perceptions of control for such high self-efficacy consumers.

6.2.4 Effects of Arousal Pleasure and Dominance on Flow

The next set of hypotheses were concerned with the effects of all three emotion variables on the feeling of Flow. In particular the Degree of Flow Felt was hypothesised to occur as a function of all three emotion variables. Specifically, Arousal, Pleasure and Dominance were all hypothesised to increase the Degree of Flow Felt.

Results of the regression analysis indicate that while Arousal and Pleasure had a significant effect on Flow, Dominance had no such effect. Moreover, Pleasure was found to have the greatest influence on the Degree of Flow Felt. These findings support previous suggestions that Pleasure influences the consumer's engagement with stimuli (e.g. Arnold & Reynolds, 2009; Menon & Kahn, 2002; Sweeney & Wyber, 2002) and that Arousal, as a representation of stimulation, is a requirement for Flow (e.g. Novak *et al.*, 2000; Wang *et al.*, 2007). The lack of support for the effect of Dominance on Flow, however, is unexpected.

In considering Dominance, it is feasible that alone, feeling unrestricted and free to act in an environment (Mehrabian & Russell, 1974) is insufficient to influence the Degree of Flow Felt. Specifically, while Chapter Three, building on previous research by Koufaris (2002) and Luna *et al.* (2002), argued that Dominance influences Flow by providing an increase in perceived control leading to a deeper level of engagement, Flow more accurately requires control over behaviour within a challenging environment (i.e. the balance of skill and a challenge) (Csikszentmihalyi, 1991; Novak *et al.*, 2000). Given the minimal effect of Change on Arousal (see Section 6.2.2), it is feasible that within an online setting the environment resulting from the change does not provide sufficient challenge to partner in equilibrium with Dominance to induce an effect on Flow. Therefore, given consumers would have felt control over environments with little challenge, it is not surprising that Dominance had no effect on the Degree of Flow Felt. However, it is noteworthy to consider for change environments that engender greater challenge, Dominance could influence Flow.

6.2.5 Effects of Pleasure, Dominance and Flow on Value

The next set of hypotheses concerned the effects of Pleasure, Dominance, and Flow on value attributions. In particular, the attributions of Hedonic Value to the changed web-site were expected to be influenced by Pleasure and Flow, while the attributions of Utilitarian Value to the changed web-site were expected to be influenced by Dominance and Flow.

Pleasure and Dominance

Pleasure and Dominance were hypothesised to have positive effects on Hedonic Value and Utilitarian Value, respectively. That is, as the level of Pleasure reported in the changed environment increases, the perceived Hedonic Value attributed to the web-site

also increases. Similarly, as the level of Dominance reported in the changed environment increases, the perceived Utilitarian Value attributed to the web-site also increases.

Results of the analysis support the effect of Pleasure on Hedonic Value, however, support for the effect of Dominance on Utilitarian Value was not found. With respect to Pleasure, these findings confirm that indeed "consumers would prefer to interact in a positive environment" (Babin & Attaway, 2000, p. 92). Moreover, these findings join the myriad of previous studies stating the importance of inducing pleasant experiences for consumers (e.g. Babin & Attaway, 2000; Chebat *et al.* 2001; Chebat, Filiatrault, Gelinas-Chebat & Vaninsky, 1995; Davis *et al.*, 2008; Jang & Namkung, 2009; Koo & Ju, 2010; Lee *et al.*, 2008; Mummalaneni, 2005; Wang *et al.*, 2007). With respect to Dominance, feelings of control were expected to increase attributions of functional value for the web-site by increasing the perceived ease with which respondents could use the web-site and the overall perceived usefulness of the web-site (e.g. Agarwal & Karahanna, 2000); however based on these results, Dominance does not directly influence the functional value perceived in the environment.

Given Dominance is a feeling engendered when an environment does not suppress one's internalised abilities to engage in behaviour (Mehrabian & Russell, 1974), it is feasible that the mere presence of a sense of unrestricted freedom is insufficient to denote an elevated level of functional value. Consequently, while, as hypothesised, it is feasible that feelings of behavioural freedom can increase the belief that functional benefits are obtainable from an experience, the translation of a Dominance inducing environment to one that offers functional utility cannot be universally guaranteed. In particular, while a person can feel free to explore the web-site, the web-site could present limitations, such as poor design, limited information, or failure to deliver expected utility.

Flow

The next two hypotheses were concerned with the effects of Flow on Value. In particular, Flow was hypothesised to have positive effects on both Hedonic Value and Utilitarian Value. That is, as the degree of Flow felt increases, the level of both Hedonic and Utilitarian Value also increases.

Results of the analysis show strong support for the hypothesis that Flow is a significant predictor of Hedonic Value and the hypothesis that Flow is a significant predictor of

Utilitarian Value. Consequently, the Degree of Flow Felt during engagement with an online environment is a significant predictor of consumer's attributions of Hedonic and Utilitarian Value toward the online environment.

These findings support previous conclusions that Flow is a contributor of emotional value (e.g. Csikszentmihalyi, 1975; Fiore & Yu, 2001; Senecal *et al.*, 2002) and, in contrast to those stated by Senecal *et al.* (2002), is a contributor of functional value, such as task efficiency and effectiveness (e.g. Agarwal & Karahanna, 2000; Koufaris, 2002, Wang *et al.*, 2007).

6.2.6 Effects of Value on Re-Acceptance

The final set of hypotheses were concerned with the effects of value on the re-acceptance variables, Attitude toward Re-patronage and Re-patronage Intention.

Hedonic Value

Hedonic Value was hypothesised to have a direct effect on both Attitude toward Re-patronage and Re-patronage Intention. That is, as the attributions of Hedonic Value toward the changed online environment increase, so too do the attitude and intention of revisiting. In line with expectations and in support of previous research (e.g. Chen *et al.*, 2008; Fiore *et al.*, 2005; Hoffman & Novak, 1996; Menon & Kahn, 2000), the results of the analysis support direct relationships between Hedonic Value and Attitude toward Re-patronage and between Hedonic Value and Re-patronage Intention. Therefore, the Hedonic Value provided by a changed environment is a key predictor of a user's attitude and intention of returning to the changed web-site.

Utilitarian Value

Similar to Hedonic Value, Utilitarian Value was hypothesised to have a direct effect on both Attitude toward Re-patronage and Re-patronage Intention. That is, as attributions of Utilitarian Value toward the changed online environment increase, so too does the attitude and intention of revisiting. While general support was found for this hypothesis, affirming previous research (e.g. Agarwal & Karahnna, 2000; Fiore *et al.*, 2005; Hoffman & Novak, 1996; Stoel, Wickliffe & Lee, 2004), further analysis of the two utilitarian sub-constructs failed to confirm the effects for both sub-constructs. Specifically, both Utilitarian Process Value and Utilitarian Outcome Value were found to have a positive effects on Attitude toward Re-patronage, however only Utilitarian

Process Value was found to have an effect on Re-patronage Intention. Consequently, while in general the Utilitarian Value provided by a changed environment is a key predictor of a user's attitude and intention of returning to the changed web-site, further investigation into the two sub-constructs could present a full understanding of the dimensional effects for Utilitarian Value.

Re-Acceptance

The final hypothesis concerned the effect of a consumer's Attitude toward Re-patronage on their Re-patronage Intention. Specifically, the final hypothesis predicted that a positive Attitude toward Re-patronage is positively related to positive Re-patronage Intentions. That is, consumers with a positive view of re-patronage have greater intentions to re-visit the modified web-site. Consistent with expectations, a respondent's Attitude toward Re-patronage was found to have a positive effect on their Re-patronage Intention. This result shows that a positive Attitude toward revisiting the web-site is a reasonable predictor of a user's consideration to revisit. Such a finding provides useful insight; specifically, while some previous studies have been unable to confirm a relationship between attitude and intention (e.g. Venkatesh, 1999; Venkatesh & Davis, 2000), this result supports Kulviwat *et al.* (2007) that when examining attitudes formed from both affective and cognitive components, there is a stronger link between attitude and intention as indicated by the prominence of a significant relationship.

6.2.7 Path Analysis of the Full Conceptual Model

Path Analysis was used to simultaneously examine the dependence relationships outlined in the conceptual model as well as to identify and evaluate optimised path models for the data.

Results of the Path Analyses for the three competing models helped confirm the results found earlier in this study and established a number of non-hypothesised relationships. Additionally, the applicability of the SOR paradigm (Donovan & Rossiter, 1982) as a framework for exploring consumer response within a change setting was supported through the analyses for the models; specifically, the effects of the two Change dimensions (the stimuli) had effects on re-acceptance (the expected behaviour) through both emotional and cognitive organism response variables.

While the conceptual model demonstrated poor fit to the data, the optimised conceptual model (termed the Optimised Perceptions Model) demonstrated significantly better fit through incorporating seven new relationships and removing four non-significant ones. In addition, a second competing model (utilising treatment conditions as independent variables and termed Optimised Treatment Model) was optimised through the inclusion of ten new relationships and the removal of four non-significant ones. This competing model also demonstrated significantly better fit compared to the conceptual model. A review of the optimised models identified that while the Optimised Treatment Model demonstrated marginally better fit to the data based solely on the AIC indices, the Optimised Treatment Model was less parsimonious than the Optimised Perceptions Model. Ultimately, however, the fit indices were fundamentally identical for the two optimised models.

6.2.8 Non-Hypothesised Relationships

Through model modification and refinement, a number of non-hypothesised relationships were integrated into the conceptual model. Each is discussed below:

6.2.8.1 Non-hypothesised Change Relationships

Change on the Emotional Response

In line with prior research adopting the original application of the PAD paradigm (e.g. Davis *et al.* 2008; Jeong, 2009; Koo & Ju, 2009; Mummalaneni, 2005; Wang, *et al.*, 2007; Wang *et al.*, 2010), results of Path Analysis found significant positive direct relationships between the stimuli (Task-Relevant Change and Non-Task-Relevant Change) and the remaining two emotional dimensions (Pleasure and Dominance). Specifically, relationships were identified between Task-Relevant Change and Pleasure, Task-Relevant Change and Dominance, and Non-Task-Relevant Change and Pleasure. By bypassing Arousal, these relationships promote, in part, upholding the original application of the PAD dimensions as direct consequences of environmental stimuli (see Donovan & Rossiter, 1982). Each of the identified relationships is discussed below.

Task-Relevant Change on Pleasure

The first of the non-hypothesised change relationships was identified between Task-Relevant Change and Pleasure. Based on the regression estimates, as Task-Relevant Change increases, Pleasure decreases. Although the direct effect of environmental stimuli

on Pleasure aligns well with previous studies on Pleasure within online settings (e.g. Eroglu *et al*., 2001; Menon & Kahn, 2002), the nature of the relationship contradicts Berlyne's (1970) contention that novel (new or unfamiliar) stimuli induce a degree of pleasantness simply due to their novelty (a phenomenon termed a novelty effect). However, in considering Berlyne's research, the effects of novelty are only tested for visual stimuli. While it is acknowledged that changes to auxiliary (visual) stimuli which do not require adaptations of behaviour (such as background colours and styles) can evoke feelings of excitement or joy (the elements of Pleasure – Mehrabian & Russell, 1974), it is feasible that the novelty induced by changes requiring subsequent behaviour to be modified do not provide such feelings of joy and excitement, but rather feelings of annoyance and despair (the elements of Displeasure – Mehrabian & Russell, 1974). Consequently, 'novelty effects' are unlikely to be prevalent for novel stimuli which require a subsequent change in behaviour – in this case Task-Relevant Change, which modifies user's usual interactions with the web-site.

Task-Relevant Change on Dominance

In addition to the non-hypothesised effect of Task-Relevant Change on Pleasure, a non-hypothesised relationship was identified between Task-Relevant Change and Dominance. Similar to Pleasure, based on the regression estimates, as Task-Relevant Change increases, Dominance decreases. This finding is consistent with research from both schemata research and stimulation research. In particular, schema literature suggests that new stimulus information (such as that induced by Change) will disrupt schema (Rensink, 2002), therefore diminishing the feeling that stored knowledge about the stimulus is sufficient to guide unrestricted behaviour toward the stimulus (Brewer & Treyens, 1981). Additionally, stimulation literature suggests that new stimulus information evokes a degree of uncertainty about the stimulus, consequently inducing more cautious approach behaviours (Berlyne, 1960).

Non-Task-Relevant Change on Pleasure

Similar to Task-Relevant Change, through model refinement a significant positive relationship between Non-Task-Relevant Change and Pleasure was identified. Based on the regression estimate, as Non-Task-Relevant Change increases so too does Pleasure. This finding contradicts the original effects expected to occur through Arousal, whereby Arousal from Non-Task-Relevant Change was predicted to decrease Pleasure; however, a

direct positive relationship between Non-Task-Relevant Change and Pleasure is plausible. Specifically, as with the effects of Task-Relevant Change on Pleasure, the direct effect of environmental stimuli on Pleasure aligns well with previous studies in online settings (e.g. Eroglu *et al.*, 2001; Menon & Kahn, 2002). Moreover, with respect to the nature of the relationship, in addition to the expected presence of the novelty effects (given the predominantly visual nature of the Non-Task-Relevant elements) as purported by Berlyne (1970) and discussed above, research in retailing has shown that certain environmental attributes (termed atmospherics – see Kotler, 1973) have a direct positive effect on enjoyment (e.g. Dailey, 2004; Eroglu *et al.*, 2001; Kim & Jin, 2001; Turley & Milliman, 2000). Such environmental atmospherics are conceptually closely related to the attributes that were modified within this study to operationalise Non-Task-Relevant Change.

Change on the Cognitive Response

In addition to the non-hypothesised effects of Change on the emotional response, three further non-hypothesised relationships were identified:

Non-Task-Relevant Change on Flow

In addition to Pleasure, Non-Task-Relevant Change was also found to have a direct effect on Flow. Specifically, the regression estimate suggests that the Degree of Flow Felt is positively influenced by a perception of Non-Task-Relevant Change. As discussed above, given Non-Task-Relevant change reflects modifications to the more visual elements of the web-site which consumers do not need to interact with to complete tasks (Eroglu *et al.*, 2001), it is feasible that Non-Task-Relevant change instils the 'novelty effects' purported by Berlyne (1970) and that the occurrence of these effects on each page functions as a source of intrinsic enjoyment while users navigate through the individual pages of the web-site, thus positively influencing Flow (Hoffman & Novak, 1996).

Task-Relevant Change on Hedonic Value and Utilitarian Value

The last two non-hypothesised change relationships identified during model refinement were between Task-Relevant Change and Hedonic Value and between Task-Relevant Change and Utilitarian Value. In particular, the regression co-efficient for the relationship between Task-Relevant Change and Hedonic Value indicates the existence of a direct positive relationship; however, the regression co-efficient for the relationship

between Task-Relevant Change and Utilitarian Value indicates the existence of a negative relationship. These relationships suggest that although Task-Relevant Change creates enjoyment in the interaction itself, it also reduces the perceived functional benefits from the interaction.

While, as discussed in the relationship between Task-Relevant Change and Pleasure, Task-Relevant Change does not evoke positive emotions toward the environment, stimulation seeking research suggests that a change within the task-relevant dimension of the web-site provides variety in the stimulus resulting in affective value from the online *experience* (e.g. Baumgartner & Steenkamp, 1992). Moreover, the experiential view of consumption suggests that experiential value (i.e. positive feelings, fantasies and fun) can be derived from variety within the consumption experience (Holbrook & Hirschman, 1982). Therefore, on one level Task-Relevant Change in the environment acts as a source of positive emotional value, yet on another level simultaneously limits task performance (Kaltcheva & Weitz, 2006) by creating a disruption to schema (Brewer & Treyens, 1981).

6.2.8.2 Non-hypothesised Emotion Relationships

Pleasure on Utilitarian Value

In addition to the hypothesised effects of Pleasure on Hedonic Value, model refinement identified a direct relationship between Pleasure and Utilitarian Value. In particular, based on the regression estimate, Pleasure has a positive effect on Utilitarian Value. That is, as the amount of Pleasure reported to be provided by the environment increases, so too does the Utilitarian Value attributed to the environment.

Such a relationship is feasible; for example, according to Babin and Attaway (2000) positive affect (positive emotions) can lead to improved task efficiency if the affect facilitates the shopping task. Therefore, the good, joyful feelings consumers experience while online could lead to expressions of achievement. Alternatively, because Pleasure extends time spent online (Donovan *et al.*, 1994), it is feasible that through third variables, such as continued or extended search, the potential for search success to be achieved increases or the potential for opportunities to attain task value (such as unplanned purchases – Inman, Winer & Ferraro, 2009) is enhanced.

Pleasure and Dominance on Attitude toward Re-patronage

The last two non-hypothesised relationships identified were between Pleasure and Attitude toward Re-patronage and between Dominance and Attitude toward Re-patronage. Based on the regression estimates, Pleasure has a positive influence on Attitude toward Re-patronage, whereas Dominance has a negative effect on Attitude toward Re-patronage. That is, as the pleasantness of the environment increases, the attitude toward re-visiting the web-site also increases; however at the same time, as the control perceived over the environment increases, there is a weaker attitude toward re-visiting the changed web-site.

Based on the primacy of affect (see Zajonc, 1984), the influence of emotion on attitude was hypothesised to occur through cognition (i.e. value). However, direct non-hypothesised emotion relationships are not entirely surprising; particularly, the influence of emotion (as an affective response) directly on attitude is consistent with attitude literature (e.g. Zajonc & Markus, 1982) and findings from previous SOR studies (e.g. Eroglu *et al.*, 2003; Fiore *et al.*, 2005). Moreover, the finding that Pleasure positively influences Attitude toward Re-patronage for the changed web-site provides further support that consumers prefer to interact in an enjoyable environment (Babin & Attaway, 2000) by linking pleasurable perceptions of an environment with a want to return to that environment.

The finding that Dominance decreases Attitude toward Re-patronage shows that a totally submissive changed environment (i.e. an environment over which a person has complete control) does not provide a want to return to the changed environment. Moreover, due to the nature of the questionnaire, respondents were reporting that the decision to revisit the changed web-site rather than revisit the existing web-site is a poor choice. In line with psychology literature (see Harmon-Jones & Allen, 2001), it is feasible that when facing very submissive environments, even though consumers have a sense of control over their actions and freedom to act unrestricted, they prefer to interact within a familiar environment rather than within an unfamiliar one.

6.2.9 Effects of Covariate Variables

Finally, five covariate constructs were used in this study, Desire for Change (operationalised as Desire for Difference and Desire for Familiarity), Enduring Involvement (operationalised as Affective Involvement and Rational Involvement), Optimal Stimulation Level, Patronage Frequency and Self-Efficacy. Overall the effects of Involvement and Desire for Change were small, while there was no significant influence from the other covariate variables. Affective Involvement exhibited a small diminishing effect; that is, those subjects who were more involved at an affective level with online banking evaluated less Arousal in the changed environment than those respondents who were less involved at an affective level. Both dimensions of Desire for Change exhibited a small amplification effect on Pleasure. That is, those subjects who held a stronger Desire for Familiarity evaluated less Pleasure than those subjects who held a weaker Desire for Familiarity. Similarly, those subjects who held a stronger Desire for Difference evaluated greater Pleasure than those subjects who held a weaker Desire for Difference.

6.3 DISCUSSION OF THE FINDINGS

Overall, the results of this study indicate that a consumer's re-acceptance of a changed online retail environment is a function of the value prescribed from the emotional and psychological states induced by the changes made to the online environment. Specifically, the re-adoption (or intention of re-adoption) of the changed web-site is a function of the value gained whilst using the web-site. Moreover, that value is a function of not only the emotion induced by the changed environment, but also the psychological state of Flow. This highlights the importance of creating an enjoyable and engaging first interaction with a changed online environment in the subsequent adoption of the online environment.

With respect to the changes made to the online retail environment, it is evidenced that Non-Task-Relevant Change and Task-Relevant Change both have an individual effect on consumer responses to change; moreover, the effects are very different. In particular, Non-Task-Relevant Change carries positive consequences, such as positive emotion, while the effects of Task-Relevant Change carry negative consequences such as negative emotions and reduced value. Moreover, the effect of changes within the Task-Relevant

components of an online retail environment are far superior to the changes imposed on the Non-Task-Relevant component. Overall, this is not an entirely surprising result, as the greatest impact of change on the consumer is expected to occur when the consumer faces changes which require modification and integration of their own behaviour as opposed to changes to the Non-Task-Relevant component, which can be detected without significant consequence to task behaviour.

Finally, as change occurs within an existing environment, the inclusion of an a-priori measure enabled the examination of previous experience on the response to change. In particular, A-priori Experience was hypothesised to influence the emotional response of the consumer. This effect was found to be significant whereby the Pleasure evoked by an environment, occurs, in part, as a function of both the stimulation from the environment and the consumer's experiences with the existing web-site. In particular, positive previous experiences with the existing web-site reduce the Pleasure reported to be provided by the new (changed) web-site.

6.4 RESEARCH IMPLICATIONS AND CONTRIBUTIONS

Based upon the findings of this research, several implications and contributions can be identified. These key contributions are presented in the following two sections for both managers and academics, respectively.

6.4.1 Managerial Implications

The first managerial implication is based on the non-hypothesised relationships of Task-Relevant Change on Pleasure, Task-Relevant Change on Dominance and Non-Task-Relevant Change on Pleasure. The finding that change has direct effects on Pleasure and Dominance, suggests that change has a significant ability to evoke an emotional response directly. Moreover, the finding that Non-Task-Relevant Change has positive consequences, such as increased Pleasure and greater experiences of Flow, while Task-Relevant Change results in negative consequences, such as decreases in control, enjoyment, and value indicate the importance of implementing change strategically. In particular, online retailers engendering change within their web-site should be focused on managing the change process to enhance the positive effects of Non-Task-Relevant Change while minimising the consequences of Task-Relevant Change. As such, retailers

should develop change implementation plans which incorporate consumer management activities. Such activities could include: informing consumers of change prior to launch focusing on new task capabilities and the benefits of such capabilities; developing and promoting alternate communication channels to facilitate real-time customer support, such as live chat; guiding consumers through new features, such as the 'take a tour' or 'learn what's new' options; and celebrating the new look and feel of the web-site with consumers after launch.

Extending this implication, while both dimensions of change have a significant effect on consumer response to change, Task-Relevant Change has the strongest effect. Thus, extending the implications drawn in the previous paragraphs, while online retailers should carefully manage the changes in the non-task-relevant dimensions (such as background changes and font changes), special emphasis should be given to managing changes in the task-relevant dimensions (such as web-site structure and navigation tools).

Consequently, this research also alludes to the importance of ensuring that Task-Relevant Change is optimised for users. Given the importance of Task-Relevant Change evidenced herein, impractical, ineffective or undesired change in the task-relevant dimension of the web-site are expected to have significant negative flow-on effects for online retailers, as discussed above.

Moreover, given Task-Relevant Change reduces Pleasure and Pleasure has a significant positive effect on acceptance and retailer benefits, online retailers need to ensure that Task-Relevant Changes is well-aligned with consumer needs or that the benefits of this type of change are clearly articulated to counter the negative emotional disposition to change. Additionally, retail managers should work to ensure consumer exposure to change occurs within a pleasant setting to minimise the expected displeasure prompted by the change, such as through 'sneak peak' exposure where consumers can choose to see change at their discretion.

While change had clear direct effects on Dominance, the effects of Dominance on subsequent consumer response could not be clearly articulated through the included constructs. Specifically, based on the results of this study, change reduces the Dominance felt in the changed environment. Subsequently, retail managers should exercise caution dealing with consumers in changed environments, particularly with respect to self-

directed behaviour, where a lack of control is expected to be most prominent. Specifically, this research suggests that consumers feel a reduction in the control of their interactions within the change environment; however whether this reduction manifests itself beyond an negative influence on re-patronage attitude is unknown. Therefore, retailers should provide extra customer service during times of change to ensure the reduction in Dominance (and its negative consequences) can be offset by directive assistance.

Finally, retail managers must manage the change to maximise the effects of A-priori Experience. Specifically, based on the findings of this study, positive A-priori Experiences decrease the Pleasure induced by Arousal within the changed environment (irrespective of the source of Arousal). Consequently, given the influence of Pleasure on the remaining response variables, when consumers hold positive previous experiences, changes are less likely to be readily appreciated and adopted. To minimise the negative consequences of change, retail mangers can be advised that change simply for the sake of change should be discouraged. Instead, retail managers should consistently monitor current attitudes and target change during periods where the quality of previous experiences within the customer base is stagnating.

6.4.2 Theoretical Implications and Contributions

Based on the results presented in this research, a number of theoretical implications and contributions can also be drawn. Each is discussed below.

The first theoretical contribution is derived from the context of the study within broader literature. In particular, the study contributes the first empirical literature on change in retailing. By exploring the responses through which consumers respond to change within an online retail environment, this study has developed a general typology of change across two dimensions of all retail environments (task-relevant and non-task-relevant). Moreover, this study has provided initial insight into the effect of change on consumer response; specifically, this study has identified the prominence of change related to the Task-Relevant dimension, while also confirming the importance of Non-Task-Relevant Change. In addition, the study has highlighted a number of potential future research areas through the identification of non-hypothesised effects of change; for example, the effects of change directly on perceptions of value in the environment.

The second theoretical contribution arises from the absence of a relationship between Task-Relevant Change and Arousal as well as the overall small R^2 value for Arousal. These shortfalls raise questions about the appropriateness for this construct to be used in studies related to online retail environments. It is feasible that little utility is provided by inducing Arousal in studies examining how consumers respond to change in the online retail environment. Moreover, it is feasible that change within the online retail environment simply has limited ability to evoke Arousal in consumers; conversely it is feasible, given the majority of subjects participating in this study were proficient users of the web, that the consumers' experiences and expertise with the Internet influence the ability for the environment to evoke Arousal.

While there has been considerable variability in the treatment of Flow in previous research (see Hoffman & Novak, 2009), the treatment of Flow within this study offers the third theoretical contribution. Specifically, through conceptual foundations, Flow was hypothesised to occur as a consequence of all three established emotional dimensions. While only partial support was found, whereby only Arousal and Pleasure influence Flow, evidence of emotional-antecedence for Flow is an extension of both the current literature on online retailing and the current literature on Flow in computer mediated environments.

The inclusion of Dominance in the model offers the final theoretical contribution. Historically, it has been relatively common practice to exclude Dominance in studies adopting emotional mediation (e.g. Lee *et al.*, 2008; Pham, 1992; Ridgway, Dawson & Bloch, 1990; Wang *et al.*, 2007). However, given Kulviwat *et al.* (2007) suggest that the significance of Dominance depends on the scope of the setting, by including Dominance and identifying significant effects, this research assists future researchers by identifying one specific setting in which Dominance is an important construct to retain for analysis and promotes the inclusion within the broader online retailing context.

6.5 RESEARCH LIMITATIONS

Overall, four main limitations were evident within this study. The first limitation concerned the design of the experimental web-sites. In particular, a number of the features/tools that respondents could normally use on the existing web-site were

unavailable on the manipulated web-sites. Although this restriction was useful for conducting the research, as it helped aid progression through the web-site and manage exposure to specific stimuli, the manipulated web-sites limited accessibility to some of the features and tools respondents could have been familiar with using. It is feasible such limited functionality could influence consumer response; however, the effect of the limited functionality on the response to change is unknown. In addition, the use of a fictitious account holder provided baseline differences between the manipulated web-site and the respondent's regular banking environment. While this difference will have been picked up by the change measures, this baseline difference creates an uncontrolled dimension of change over and above that in the manipulated change dimensions. Consequently, the effect of such baseline difference on the response to the manipulated change is unknown.

The second limitation related to the context of the experimental web-sites. Specifically, this research utilised only a single industry and, within that industry, a single commercial web-site as the source of the experimental manipulations. So, although online banking provided a number of useful characteristics for testing the conceptual model, it failed to provide a generalisable context. In particular, alternate retailing contexts, such as electronics retailing, or DVD rentals, could offer greater opportunity for both directive and non-directive consumer behaviour, compared to the task orientated, thought and process driven banking context. Consequently, the research cannot draw concrete conclusions about consumer response to change in hedonic shopping contexts and care should be taken in generalising the results of this study to all online retailers. Replication of the preceding models to alternate online retailing formats should occur in order to validate the findings presented in this research.

The third limitation concerned two of the characteristics of the sample. In particular, the use of a New Zealand banking web-site restricted the population from which respondents could be recruited to those actively affiliated with New Zealand – primarily citizens and residents. It is plausible that other cultures could respond differently to changes in web-sites they use, particularly in cultures where the Internet adoption rates are low or, alternatively, in cultures where innovation and change are resisted or encountered on an infrequent basis. Similarly, not all customers have necessarily been represented in the study (for example risk adverse customers). Although a broad range of sources were

utilised to recruit participants, the generalisabilty of the findings presented may be limited by self-selection bias. Consequently, care must be exercised in extending the findings of this study to all types of customers, particularly global markets and diverse consumer groups.

The final limitation is related to two aspects of the data collected. In particular, the research focused on obtaining initial responses to change, however it is plausible that a consumer's long-run repeat patronage can be affected by the first few visits to a changed web-site, not only the initial interaction. In addition, the measurement of behavioural intention as opposed to the observations of actual behaviour restricts the identification of subtle or unconscious behavioural responses, such as prolonged/retracted use during a single session or increased/decreased numbers of visits per week, which cannot be captured by a measure of intention. Consequently, caution should be exercised when extending the results presented in this study to predictions of actual consumer behaviour within a changed online retail environment.

6.6 DIRECTIONS FOR FUTURE RESEARCH

Building upon the results presented in Chapter Five, a number of avenues for the continued study of change in marketing are discussed in the sections following. These avenues are arranged into four main themes.

6.6.1 Initial Directions from Limitations

Many of the issues identified in the limitations section of this chapter provide initial directions for future research. Specifically, future research should replicate this study in multiple locations around the world or with global online retailers to assess the applicability of the findings to a wider (perhaps global) population. Similarly, the replication of the study with multiple businesses within multiple retail categories should be undertaken to examine the generalisabilty of the results within online retailing. Furthermore, future research should re-examine consumers' responses to change by integrating change into a real-world, fully functional retail web-site and focus on extending the research models to include actual re-patronage behaviour.

6.6.2 Exploring Alternate Applications of Change

A number of fruitful areas for future research focus on extending the treatment of change utilised in the current research.

Specifically, in this study, change was manipulated along two dimensions which were adapted from existing typologies of the online retail environment. However, it is plausible that alternative web-site typologies could be adopted to offer additional insights into change. Specifically, while the environment can be segregated into parts, the point of segregation differs with each typology. Consequently, for studies with more focused outcomes (such as trust gains), it is feasible that the reclassification of change along alternative dimensions (for example content and design – Huizingh, 2000) could provide a greater depth of insight for managers and academics.

Additionally, the Task-Relevant and Non-Task-Relevant changes were made to the web-site for the purpose of maximising the noticeable differences on the two typological dimensions. As a result, the changes were not optimised to either improve or inhibit the performance or the look of the web-site. While most retailers would be modifying web-sites with the intention of making improvements, online providers do not always make changes which translate to perceptions of improvement for users (e.g. Facebook). Consequently, future research should examine the impact of an improving versus an inhibiting change on consumer response to change.

Furthermore, the experimental web-sites were methodically manipulated to create the required levels of task-relevant and Non-Task-Relevant change. In doing so, this method reflected a greater retailer-driven-type change. However, much like the use of consumer feedback for service performance (e.g. Davidow & Dacin, 1997) and consumer involvement in co-creation (e.g. O'Hern & Rindfleisch, 2010) consumer feedback is a tool retailers can utilise when undergoing a web-site change to help achieve a successful implementation. Involving the consumer in the change process, such as asking which features they would like to see, or through beta testing of potential new sites, could impact on how the consumer subsequently responds to the 'co-created' change. Subsequently, future research should examine the effect of consumer involvement with change on their response to change.

Finally, in a commercial retail setting, retailers have a choice about whether their consumers are informed that change is going to occur, however, this research was required to inform participants that they were viewing a modified web-site. Consequently, the ability to examine the effect of unexpected change (i.e. surprise) on the response to change was limited in the present study. However, given the variation in responses between expected and unexpected change identified from psychology research (e.g. Niepel, 2001), examining the effects of surprise on consumers' responses in retail settings should provide further practical insights. Therefore, future research should explore the effects of an expected versus an unexpected web-site change on the consumer's response to change.

6.6.3 Exploring Alternate Mediation Theories

Along with the avenues focusing on alternate applications of change, future research could explore alternate mediation opportunities. Two such avenues are presented below.

While this study conceptualised emotion using the Pleasure, Arousal, Dominance (PAD) paradigm (Mehrabian & Russell, 1974), alternate emotional typologies (e.g. Izard, 1977; Plutchik, 1980) have been shown to be suitable for consumer research. As such, future research should examine if other affective states can be evoked when consumers interact with a changed online retail environment. Moreover a number of alternate typologies examine discrete dimensions of emotion which are not directly measurable through the PAD paradigm. Therefore, to avoid the complexities of disseminating the PAD paradigm into discrete dimensions, future research could replace the circumplex structure of the PAD paradigm with single integral emotions, such as Frustration, Enjoyment or Anger, and examine their effects on consumer response to change.

Additionally, although emotional mediation demonstrated significant effects, the cognitive nature of the online environment as suggested by other authors (e.g. Rosen & Purinton, 2004) offers the opportunity to examine the possibility that a consumer's response to change could be examined through cognition-primed models. In particular, the process by which change is recognised and responded to may be further explained by investigating the role of cognitive variables (such as complexity or coherence). Consequently, future research should utilise cognitive mediation theory and develop change models which incorporate a cognitively mediated response.

6.6.4 Extending the Current Research

The final theme of future research is related to extending the current research. While a number of areas were identified in Section 6.2, further original directions extending the current research through replication, examining flow-on effects, and exploring alternate response behaviours are also presented.

As identified in Section 6.2.8, a number of non-hypothesised relationships were uncovered. Subsequently, further examination and validation of these relationships would provide extension of the current research. Specifically, the effects of Change directly on the emotional dimensions are worthy of further investigation. In addition, the effect of Non-Task-Relevant Change on Flow requires further examination to explore the assertion that changes in the peripheral information of a web-site provide a source of intrinsic enjoyment. Further investigation is required to validate the effects of Task-Relevant Change on both Utilitarian and Hedonic Value, while a future examination of the assertions provided to explain the unexpected positive effect of Pleasure on Utilitarian Value is also required. Lastly, future research is needed to validate the effects found for both Pleasure and Dominance on Attitude toward Re-patronage.

In addition to the non-hypothesised relationships identified through model refinement, a number of unexpected non-hypothesised effects within the hypothesised relationships are worthy of further examination. For example, the examination of the effects of Change on Arousal (more precisely the lack of effects) would provide significant additional insight. Similarly, investigations into potential additional consequences of Dominance would provide vital insight to enable managers to understand the consequences of changes which inhibit perceptions of control while online, while exploring the degree of challenge exuded across different types of changes or environments would provide interesting extension and offer further validation of Flow as a response to change.

Further to the future research opportunities identified in Section 6.2, the first extension of the current research focuses on replicating the research in an offline retail environment. Although numerous studies have examined the physical store environment and consumer behaviour (e.g. Bitner, 1982; Turley & Milliman, 2000; Ward, Bitner & Barnes, 1992), few have examined, in detail, the effect of change along the Task-Relevant and Non-Task-Relevant dimensions of the physical environment, opting instead for examinations of specific environmental attributes and their effects on internal and external consumer

responses. While the model in the current study was developed for an online (virtual) environment, it has conceptual foundations in a more generalised retail environment. As such, future research following this avenue would enable validation of the model within the broader scope of a retail environment.

Additionally, the current research can be extended by exploring further flow-on effects from change. Specially, the re-acceptance of the web-site was examined as the ultimate outcome in this study, however, it is feasible that continued use of a web-site (re-acceptance) may not reflect improved consumer attitudes, particularly if the web-site holds some competitive advantage (such as low prices, free delivery, or overnight delivery). Therefore, an in-depth analysis of the re-acceptance measures should be undertaken. For example the change in consumer attitude toward using the web-site or change in re-patronage intention could be compared pre- and post- change. Alternatively, other flow-on effects impacting the retailer could occur as a result of change. For example, consumer-brand phenomena, such as positive word of mouth, consumer commitment (such as use of additional services), or the strength of the consumer brand relationship, could all change as a result of retail web-site change. Consequently, future research should explore alternate internalised outcomes to change which benefit the retailer as a component of consumer response to change.

The final avenue for future research focuses on extending the current study to investigate response behaviours in greater detail. Specifically, developing an understanding of how consumers respond to change involves not only their internalised (psychological) processes but also the responses which manifest as behaviours. Therefore, the effect of a change on process behaviours, such as navigation style, extended/contracted time spent online, or increased/decreased number of visits could provide further practical insight for retail managers and academics alike. Consequently, future research should examine changes in process behaviours as a component of consumer response to change.

6.7 RESEARCH SUMMARY

The aim of this research was to explore how consumers respond to changes in commercial retail web-sites. Broadly, this study has been successful in satisfying this aim by achieving the objectives outlined in Chapter One.

In satisfying the aim of the study, this research has contributed the first empirical study focused on change in online retailing, identifying the differing effects of engendering change within the two broad dimensions of the web-site (Task-Relevant and Non-Task-Relevant) on consumer response. In addition, the response process hypothesised in the conceptual model was largely supported, while the addition of non-hypothesised paths provided additional insights. Moreover, a number of key constructs that retail mangers need to consider when engendering web-site changes were identified within the response process. Finally, as a concluding contribution, a series of avenues were presented outlining future research opportunities in the area of change in retailing.

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APPENDICES

APPENDIX 1. Source Web-site

Please refer to the Accompanying Digital Material CD:

Description of Appendix -

The facsimile of the existing web-site utilised as the basis for engendering the four manipulation web-sites.

APPENDIX 2. Minor Change Web-site

Please refer to the Accompanying Digital Material CD:

Description of Appendix -

The Minor Change manipulation reflecting low levels of both task-relevant and non-task-relevant change:
One attribute was added and one attribute was modified in each of the task and non-task-relevant components of the web-site.

APPENDIX 3. Aesthetic Change Web-site

Please refer to the Accompanying Digital Material CD:

Description of Appendix -

The Aesthetic Change manipulation reflecting a combination of low task-relevant change and high non-task-relevant change:
In addition to the one attribute added and the one attribute modified in the task-relevant component of the web-site, four attributes were added and four attributes were modified in the non-task-relevant component, creating a total of eight non-task-relevant variations and two task-relevant variations.

APPENDIX 4. Task Change Web-site

Please refer to the Accompanying Digital Material CD:

Description of Appendix -

The Task Change manipulation reflecting a high level of task-relevant change and a low level of non-task-relevant change:
In addition to the one attribute added and the one attribute modified in the non-task-relevant component of the web-site, four attributes were added and four attributes were modified in the task-relevant component, creating a total of eight task-relevant variations and two non-task-relevant variations.

APPENDIX 5. Full Change Web-site

Please refer to the Accompanying Digital Material CD:

Description of Appendix -

The Full change manipulation reflecting high levels of both task-relevant change and non-task-relevant change:
The eight task-relevant variations manipulated for the aesthetic change condition and the eight non-task-relevant variations manipulated for the task change condition combined into the full change condition comprising all 16 distinct variations.

APPENDIX 6. Questionnaire

Description of Appendix -

The questions from the self-report questionnaire administered during the experiment.

For an HTML version of the questionnaire,
please refer to the Accompanying Digital Material CD

-- QUESTIONNAIRE CONTENT FOR SCREEN 2 OF EXPERIMENTAL PROCEDURE --
[See Appendix 8.2]

WESTPAC QUESTIONNAIRE

Thank-you for agreeing to take part in this research.

Please complete the questionnaire with respect to the Personal Banking Pages for the **Westpac** Web-site *only*.

This questionnaire consists of three main parts.
- In the first part you will be asked a few *background questions*.
- In the second part you will be asked to *view a **modified** version of the web-site*.
- In the final part you will be asked a number of questions *about the modified web-site*.

Please answer all questions and be as honest and truthful as possible in your responses.

Reminder:
If at any point you wish to withdraw from the research, you may do so by clicking the withdraw button located at the bottom of each page.

Please answer the following question by rating the characteristics: What are your thoughts about online banking?

worthless	○	○	○	○	○	○	○	valuable
mundane	○	○	○	○	○	○	○	fascinating
boring	○	○	○	○	○	○	○	interesting
unexciting	○	○	○	○	○	○	○	exciting
not needed	○	○	○	○	○	○	○	needed
means nothing to me	○	○	○	○	○	○	○	means a lot to me

Please answer the following question by rating the degree to which you agree or disagree with the statements: How would you characterise your history with the existing personal banking pages of the bank'sweb-site?

	Strongly Disagree						Strongly Agree
I have visited this web-site many times in the past.	○	○	○	○	○	○	○
I am a frequent visitor of this web-site.	○	○	○	○	○	○	○
I normally go to this web-site.	○	○	○	○	○	○	○

Please answer the following question by rating the degree to which you agree or disagree with the statements: What are your thoughts about the existing personal banking pages of the bank'sweb-site?

	Strongly Disagree						Strongly Agree
I like the web-site.	○	○	○	○	○	○	○
I think the web-site is a good web-site.	○	○	○	○	○	○	○
I think it is a nice web-site.	○	○	○	○	○	○	○

Thinking about your general ability to use the internet (e.g. for searching, browsing and buying), please rate the following based on the degree to which you agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
I am fully capable of using the Internet.	○	○	○	○	○	○	○
I am confident in my ability to use the Internet.	○	○	○	○	○	○	○
Using the Internet is well within the scope of my abilities.	○	○	○	○	○	○	○
I do not feel I possess enough skill to use the Internet proficiently.	○	○	○	○	○	○	○
My past experiences increase my confidence that I will be able to successfully use the Internet.	○	○	○	○	○	○	○

Thinking generally about yourself, please answer the following questions based on the degree to which you agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
I like to continue doing the same old things rather than trying new and different things.	○	○	○	○	○	○	○
I like a job that offers change, variety, and travel, even if it involves some danger.	○	○	○	○	○	○	○
I am continually seeking new ideas and experiences.	○	○	○	○	○	○	○
I like continually challenging activities.	○	○	○	○	○	○	○
When things get boring, I like to find some new and unfamiliar experiences.	○	○	○	○	○	○	○
I prefer a routine way of life to an unpredictable one full of change.	○	○	○	○	○	○	○

Please answer the following questions about yourself based on the degree to which you agree with the statements.

	Strongly Disagree						Strongly Agree
I prefer to visit web-sites which are novel.	○	○	○	○	○	○	○
I like to use web-sites which seem familiar.	○	○	○	○	○	○	○
I am more likely to enjoy using a web-site which is different.	○	○	○	○	○	○	○
I am very excited to use a web-site that has changed.	○	○	○	○	○	○	○
Given the choice, I would prefer the web-sites I use NOT to change.	○	○	○	○	○	○	○

-- QUESTIONNAIRE CONTENT FOR SCREEN 4 OF EXPERIMENTAL PROCEDURE --
[See Appendix 8.4]

Thinking about the web-site you have just visited, please rate the following based on the degree to which you agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
The look of the web-site was very different.	○	○	○	○	○	○	○
The aesthetic design of the web-site seemed very different.	○	○	○	○	○	○	○
The web-site looked very stale.	○	○	○	○	○	○	○
The style of the web-site seemed familiar.	○	○	○	○	○	○	○
The presentation of the web-site was very different.	○	○	○	○	○	○	○

Thinking about your time at the web-site you have just visited, please rate the following based on the degree to which you agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
What I needed to do to complete my tasks was very different.	○	○	○	○	○	○	○
How I used the web-site was very different.	○	○	○	○	○	○	○
The way I used the web-site was very different.	○	○	○	○	○	○	○
The web-site was very different with respect to the parts used to complete tasks.	○	○	○	○	○	○	○
The parts of the web-site I interacted with to complete my tasks were very different.	○	○	○	○	○	○	○
The way I was able to use the web-site had many changes.	○	○	○	○	○	○	○

Overall, the web-site had experienced:

Small degree of change	○	○	○	○	○	○	○	Large degree of change

Please rate the way the web-site made you feel. This web-site made me feel:

happy	○	○	○	○	○	○	○	○	○	unhappy
pleased	○	○	○	○	○	○	○	○	○	annoyed
satisfied	○	○	○	○	○	○	○	○	○	dissatisfied
contended	○	○	○	○	○	○	○	○	○	melancholic
hopeful	○	○	○	○	○	○	○	○	○	despairing
relaxed	○	○	○	○	○	○	○	○	○	bored
stimulated	○	○	○	○	○	○	○	○	○	relaxed
excited	○	○	○	○	○	○	○	○	○	calm
frenzied	○	○	○	○	○	○	○	○	○	sluggish
jittery	○	○	○	○	○	○	○	○	○	dull
wide-awake	○	○	○	○	○	○	○	○	○	sleepy
aroused	○	○	○	○	○	○	○	○	○	unaroused
controlling	○	○	○	○	○	○	○	○	○	controlled
influential	○	○	○	○	○	○	○	○	○	influenced
in control	○	○	○	○	○	○	○	○	○	cared for
important	○	○	○	○	○	○	○	○	○	awed
dominant	○	○	○	○	○	○	○	○	○	submissive
autonomous	○	○	○	○	○	○	○	○	○	guided

-- QUESTIONNAIRE CONTENT FOR SCREEN 5 OF EXPERIMENTAL PROCEDURE --
[See Appendix 8.5]

With respect to the interaction you have just had with the web-site, please answer the following questions based on the degree to which you agree or disagree with the statements: When using the web-site:

	Strongly Disagree						Strongly Agree
I felt there were distractions.	○	○	○	○	○	○	○
I felt totally absorbed in what I was doing.	○	○	○	○	○	○	○
I thought about other things.	○	○	○	○	○	○	○
Interacting with this web-site made me feel curious.	○	○	○	○	○	○	○
I felt using the web-site aroused my imagination.	○	○	○	○	○	○	○
I felt using this web-site excited my curiosity.	○	○	○	○	○	○	○
I felt that I had no control over my interactions with this web-site.	○	○	○	○	○	○	○
This web-site allowed me to feel control over the computer interaction.	○	○	○	○	○	○	○
When navigating on this web-site, I felt in control.	○	○	○	○	○	○	○
I felt bored interacting with this web-site.	○	○	○	○	○	○	○
This web-site was fun for me to navigate.	○	○	○	○	○	○	○
Interacting with this web-site was interesting.	○	○	○	○	○	○	○

Again, with respect to the interaction you have just had with the web-site, please answer the following questions based on the degree to which you agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
The online experience truly was a joy	○	○	○	○	○	○	○
I continued to look around the web-site, not because I had to, but because I wanted to.	○	○	○	○	○	○	○
Compared to other things I could have done, the time spent on the web-site was truly enjoyable.	○	○	○	○	○	○	○
Navigating the web-site was not a very nice use of time.	○	○	○	○	○	○	○
During the navigation, I felt the excitement of the hunt.	○	○	○	○	○	○	○
While navigating this web-site I felt a sense of adventure.	○	○	○	○	○	○	○
This web-site would be useful for carrying out my banking activities.	○	○	○	○	○	○	○
This web-site would improve my performance in carryingout banking activities.	○	○	○	○	○	○	○
This web-site would enable me to carry out banking activities faster.	○	○	○	○	○	○	○
This web-site would enhance my effectiveness in carrying out banking activities.	○	○	○	○	○	○	○
This web-site would make it easier to to carry out my banking activities.	○	○	○	○	○	○	○
This web-site would increase my productivity while conducting banking activities.	○	○	○	○	○	○	○
With respect to banking activities:							
I don't think I would be able to get the information or services that I might need at this web-site.	○	○	○	○	○	○	○
I would be able to accomplish just what I want at this web-site.	○	○	○	○	○	○	○
While navigating this web-site, I wouldn't be able to find what I was looking for.	○	○	○	○	○	○	○

Based on a scenario where you could choose to use the new (modified) web-site OR the old (existing) web-site when you visit the personal banking pages for the bank, please answer the following:

Visiting the <u>modified</u> web-site would be:

good	○	○	○	○	○	○	○	bad
foolish	○	○	○	○	○	○	○	wise
favourable	○	○	○	○	○	○	○	unfavourable
negative	○	○	○	○	○	○	○	positive

As above, based on a scenario where you could choose to use the new (modified) web-site OR the old (existing) when you visit the personal banking pages for the bank, please answer the following based on the degree to which you are agree or disagree with the statements.

	Strongly Disagree						Strongly Agree
I do not expect to visit the **modified** web-site in the future.	○	○	○	○	○	○	○
I expect my relationship with the **modified** web-site to be enduring.	○	○	○	○	○	○	○
I expect to be coming to the **modified** web-site for a long time.	○	○	○	○	○	○	○
It is likely I will visit the **modified** web-site in the future.	○	○	○	○	○	○	○

-- QUESTIONNAIRE CONTENT FOR SCREEN 6 OF EXPERIMENTAL PROCEDURE --
[See Appendix 8.6]

Finally, please answer the following about yourself:

What is your Age?

e.g. 35

What is your Gender?

- Male
- Female

What is the highest level of Education you have acheived?

- Did not complete High School
- Completed High School
- Polytech Diploma
- University Diploma
- Polytechnic Degree
- University Undergraduate Degree
- University Graduate Degree

Excluding work activities and checking email, approximately how many hours a week do you use the Internet?

- Less than Five Hours
- 5 - 9 Hours
- 10 - 14 Hours
- 15 - 19 Hours
- 20 - 24 Hours
- 25 - 29 Hours
- 30 Hours or more

Excluding checking emails, what is your level of Internet expertise?

- I consider myself a novice user of the Internet
- I consider myself a competent user of the Internet.
- I consider myself a proficient user of the Internet.

APPENDIX 7. Human Ethics Approval

Description of Appendix -

A copy of the Letter of Approval from the University of Canterbury Human Ethics Committee.

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Human Ethics Committee

Tel: +64 3 364 2241, Fax: +64 3 364 2856, Email: human-ethics@canterbury.ac.nz

Ref: HEC 2010/94

9 August 2010

Jeremy Ainsworth
Department of Management
UNIVERSITY OF CANTERBURY

Dear Jeremy

The Human Ethics Committee advises that your research proposal "Re-launch acceptance in web based shopping environments" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 5 August 2010.

Best wishes for your project.

Yours sincerely

PP Dr Michael Grimshaw
Chair, Human Ethics Committee

APPENDIX 8. Experimental Procedure

Description of Appendix -

Screenshots of the experimental procedure as followed by participants.

Screen 1 – Introduction to Research with Ethical Considerations

Screen 2 – Introduction to Questionnaire and Questionnaire Part 1 – Covariates

Screen 3 – Introduction to Stimulus Material

Screen 4 – Stimulus Material

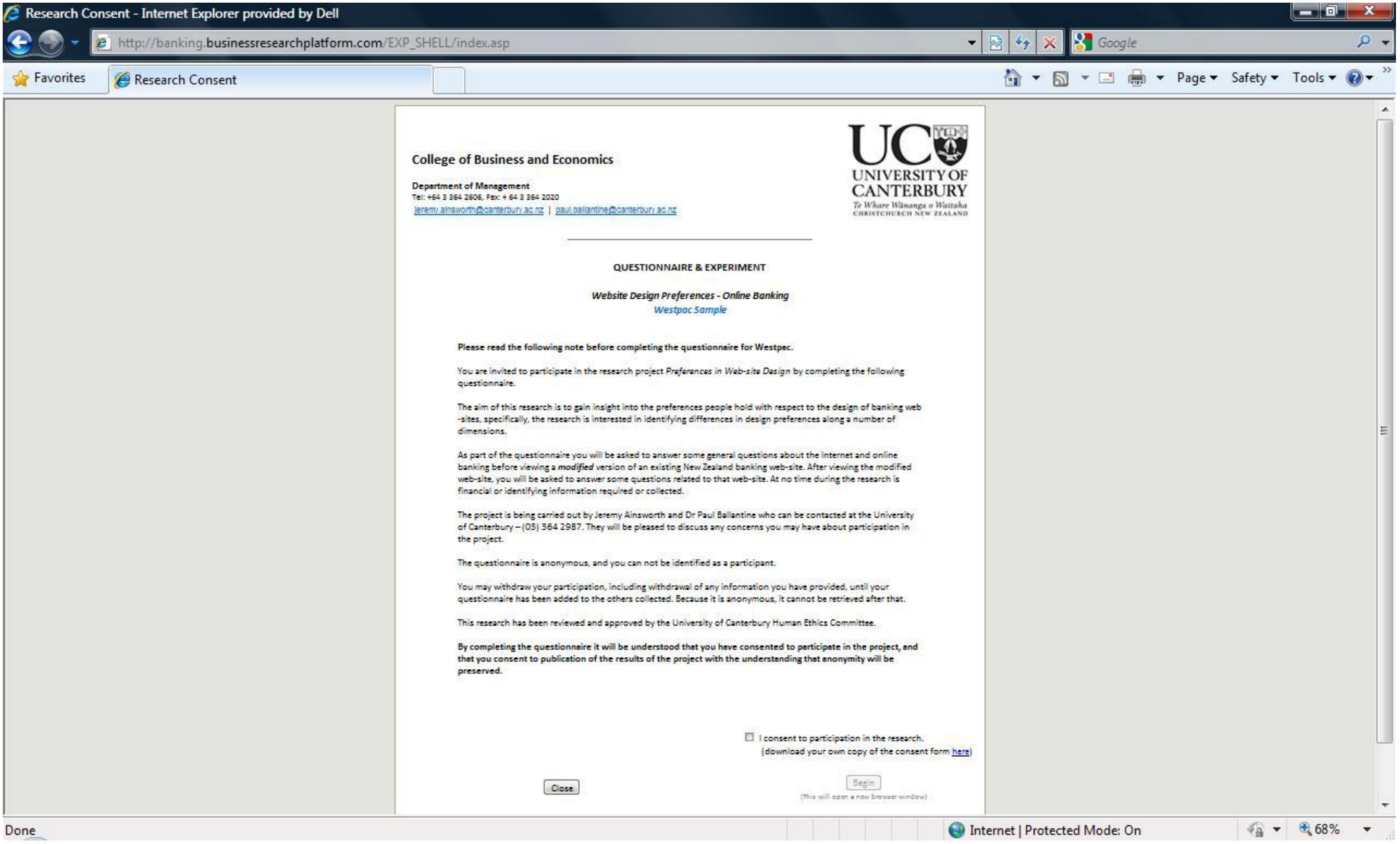
Screen 5 – Questionnaire Part 2 – Stimulus-Related Information

Screen 6 – Questionnaire Part 3 – Experience-Rated Information

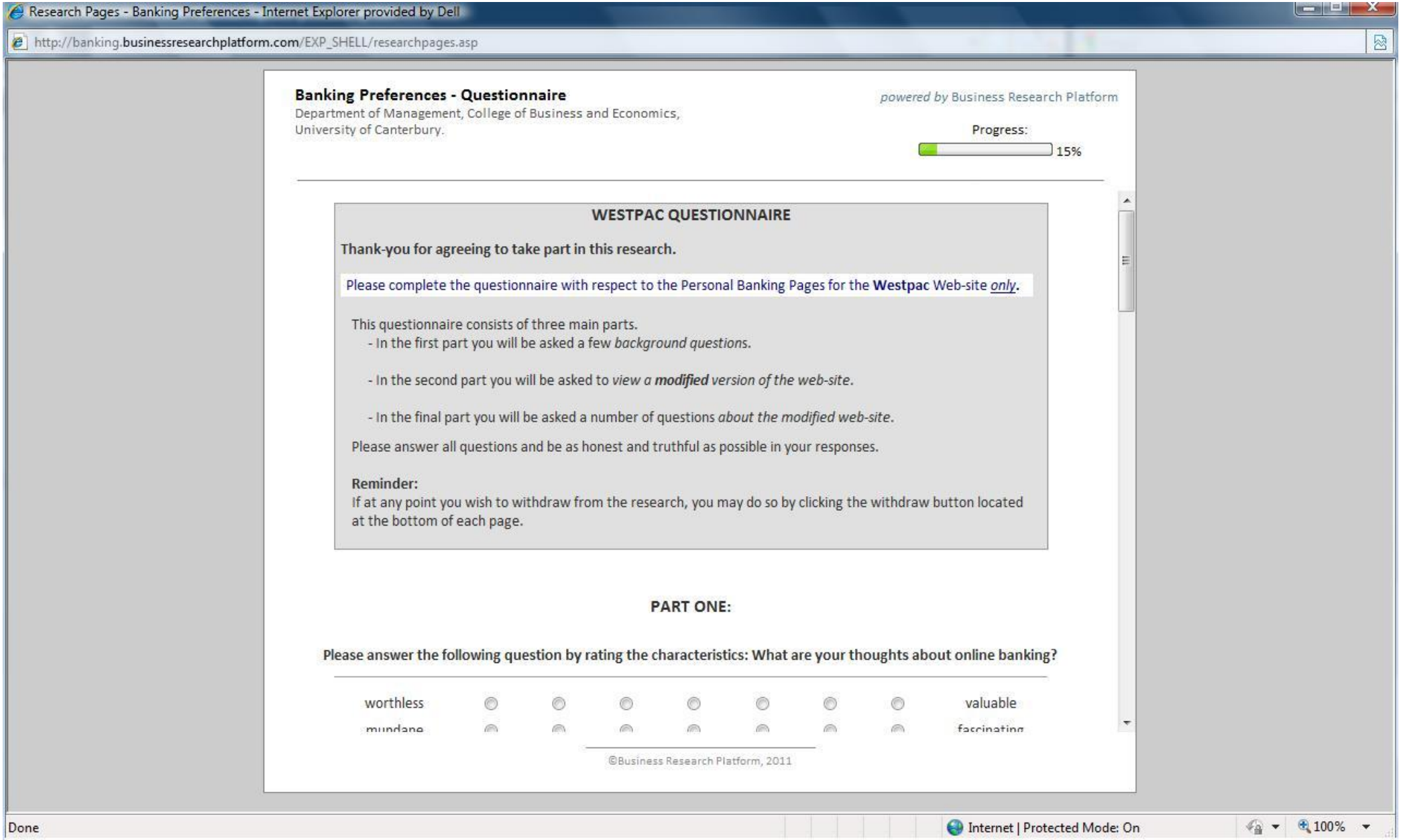
Screen 7 – Questionnaire Part 4 – Demographic Information

Screen 8 – Thanks, Confirmation of Entry in Prize Draw, Ethical Requirements.

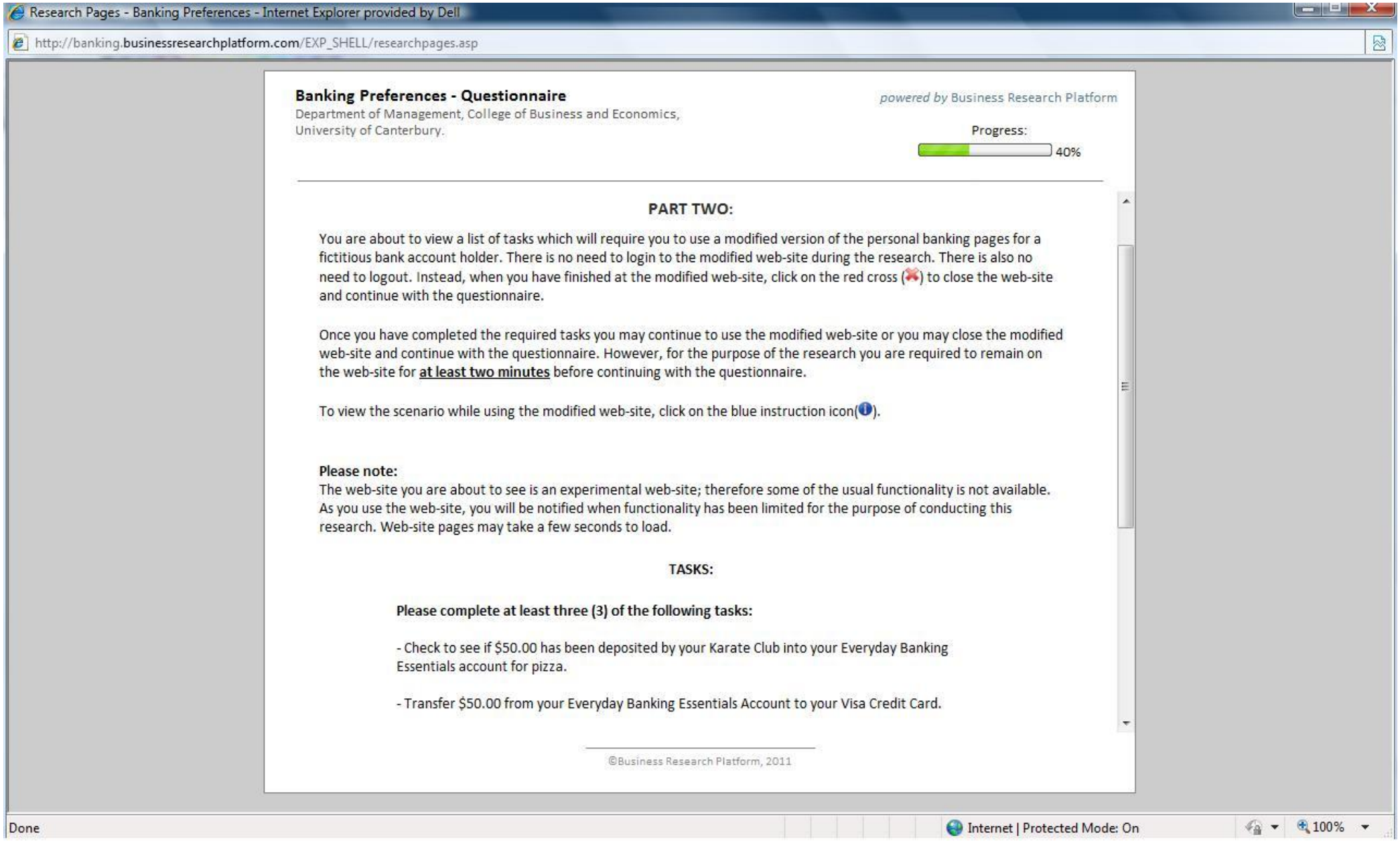
Screen 9 – Thanks and Ethical Requirements.



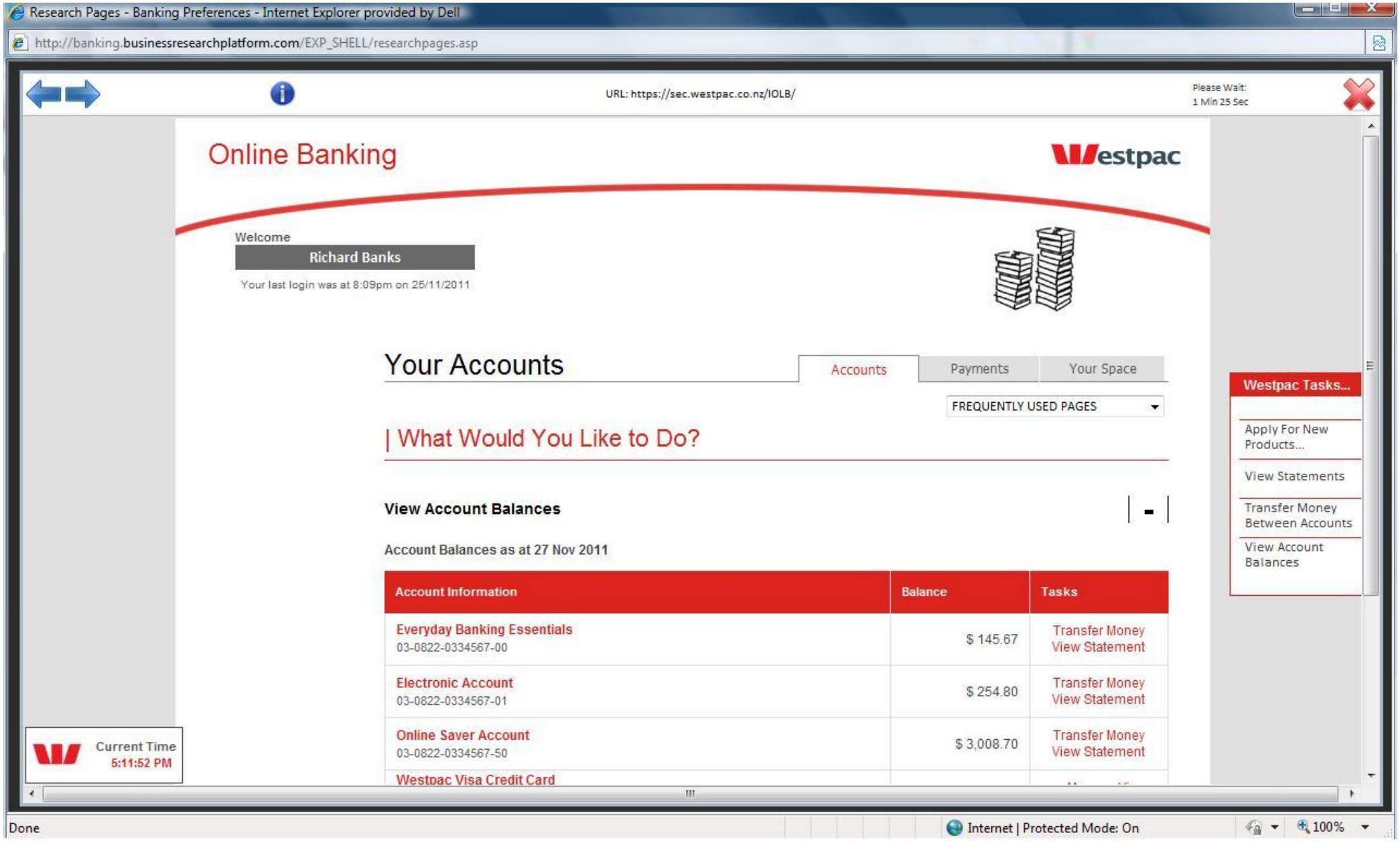
Appendix 8.1 – Screen 1



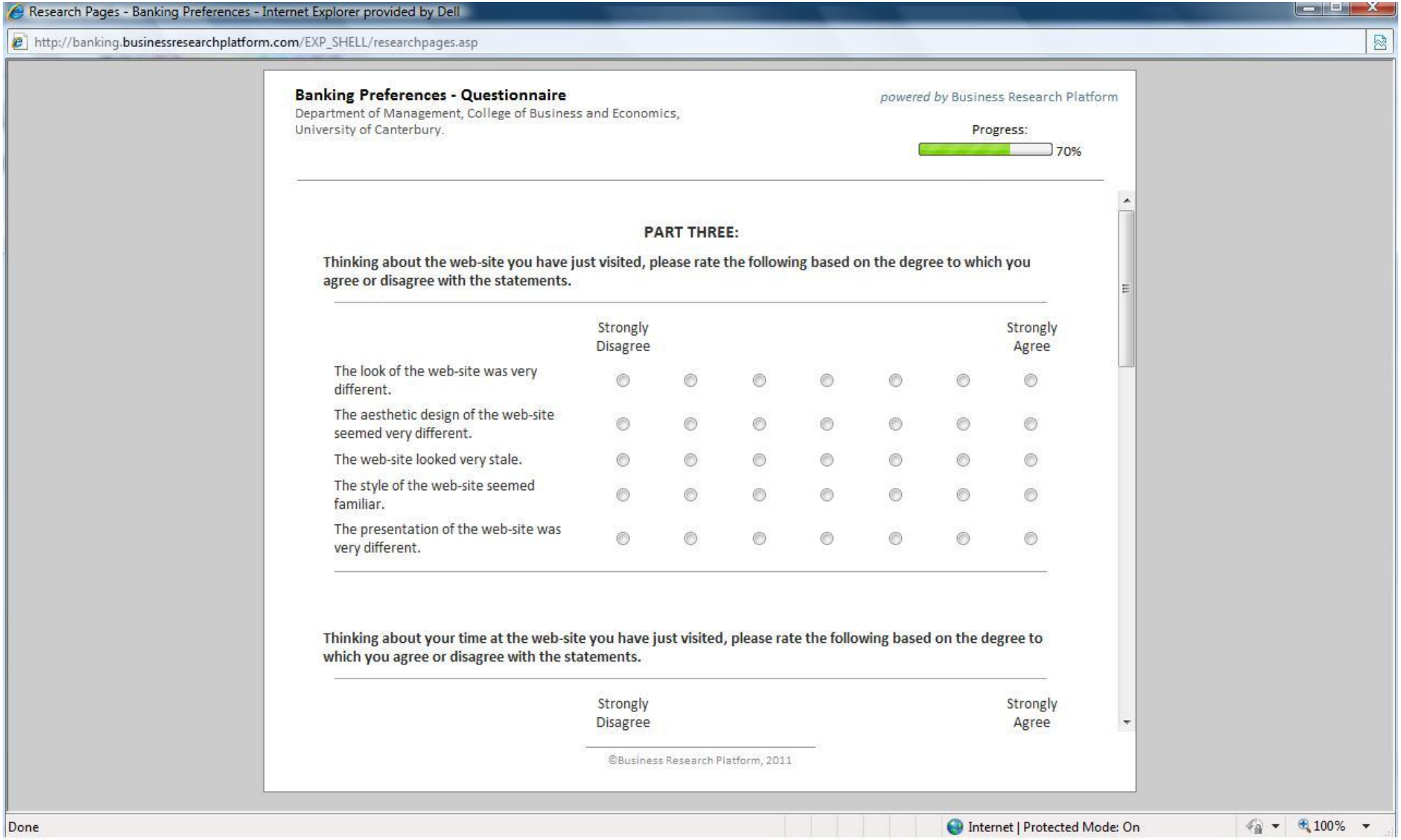
Appendix 8.2 – Screen 2



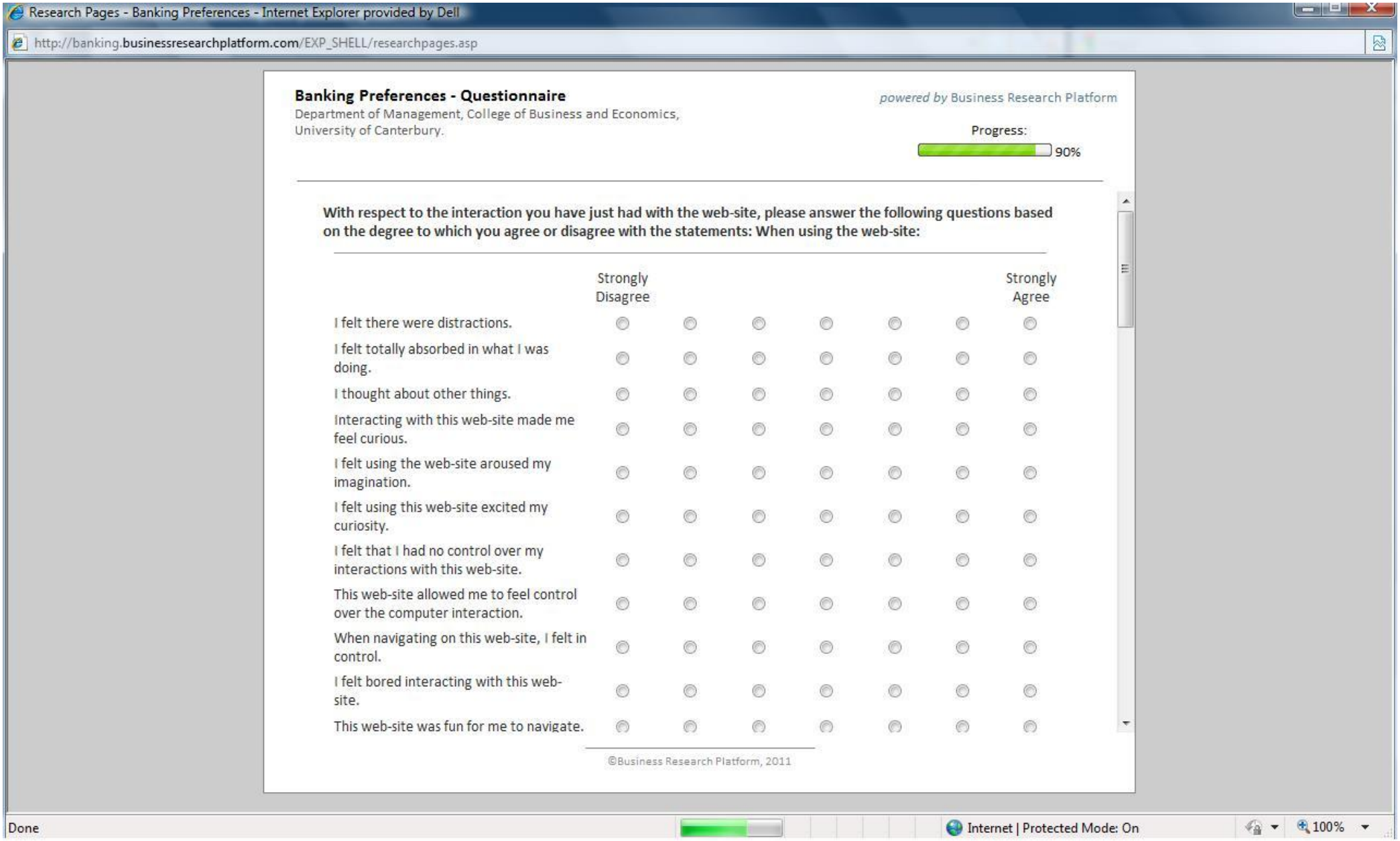
Appendix 8.3 – Screen 3



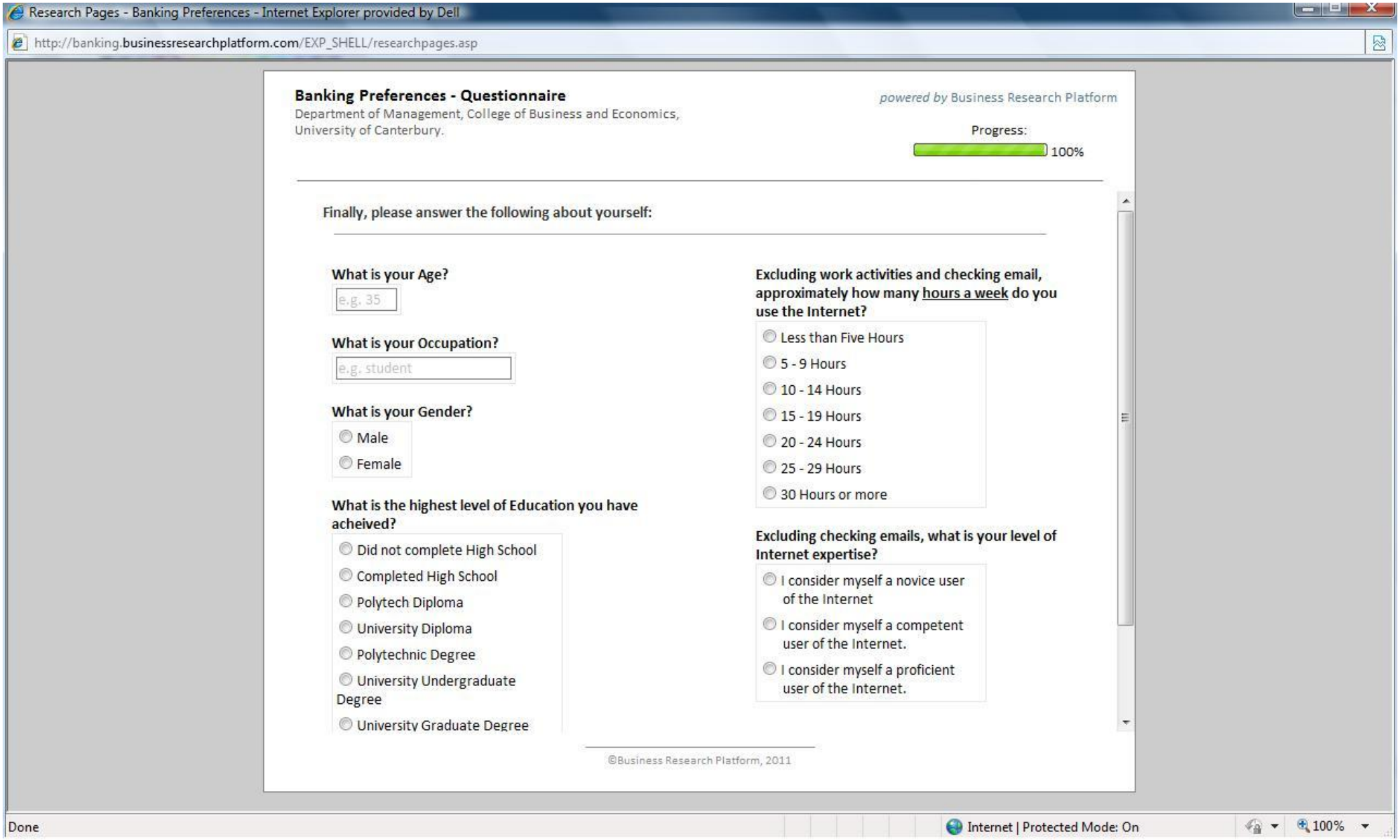
Appendix 8.4 – Screen 4



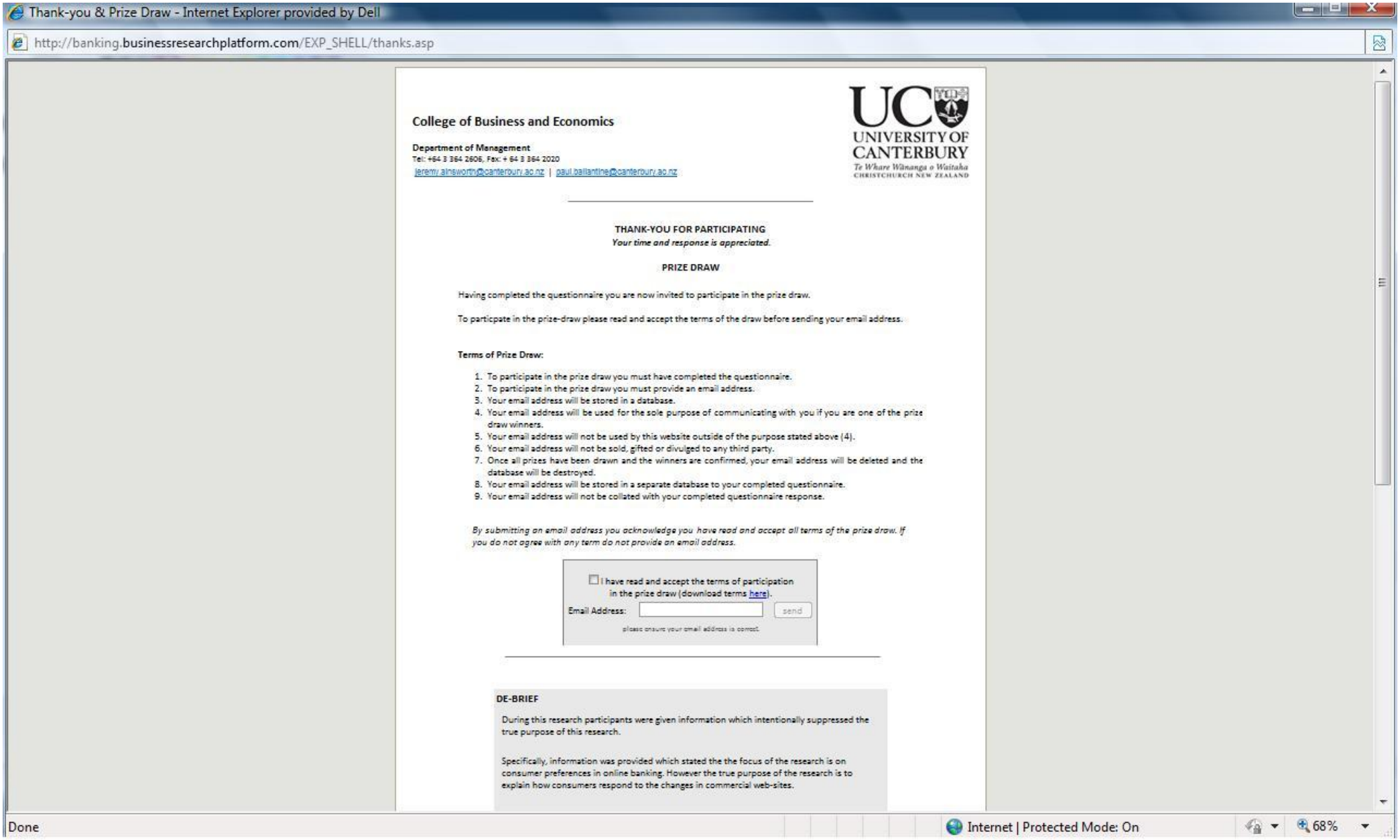
Appendix 8.5 – Screen 5



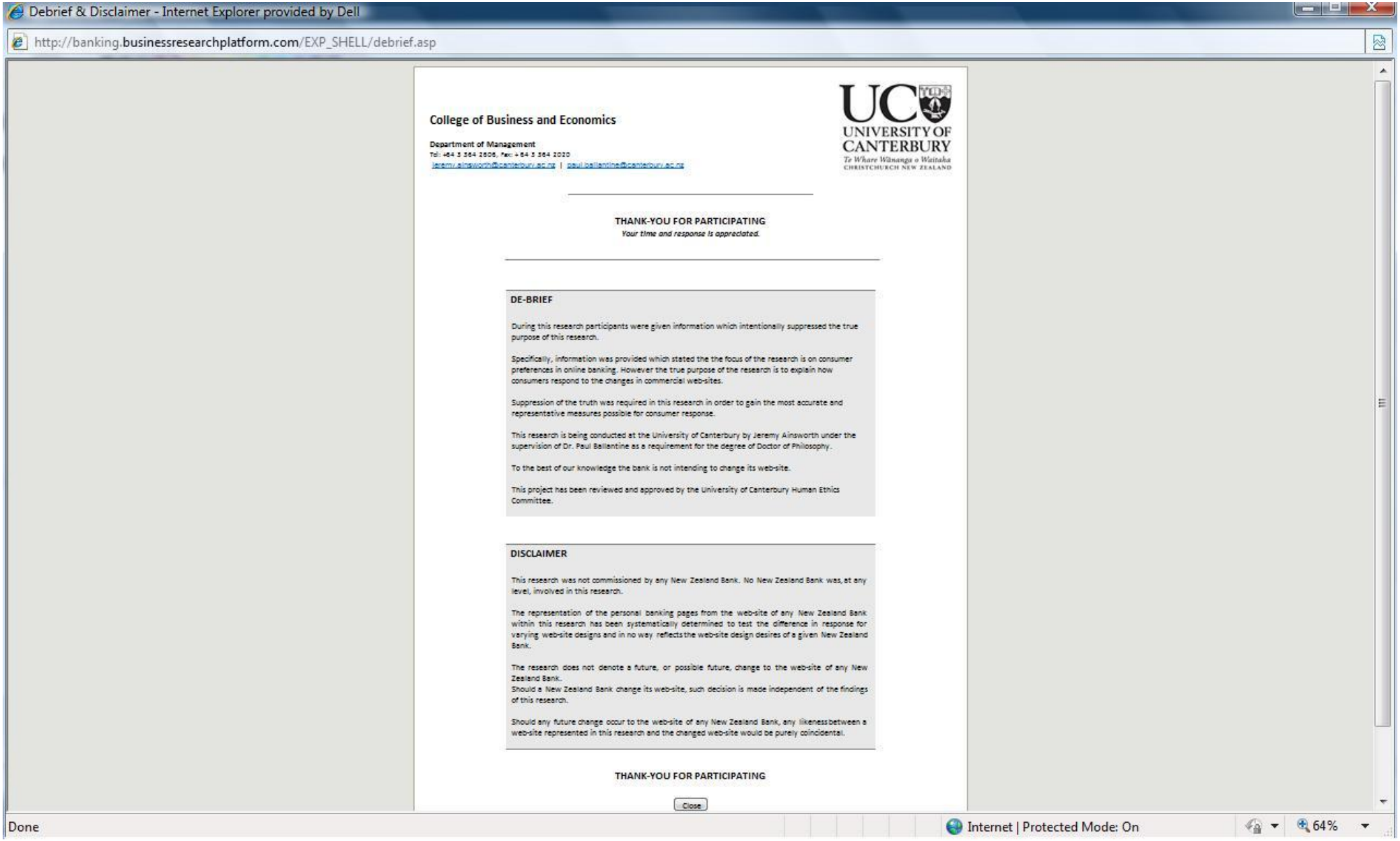
Appendix 8.6 – Screen 6



Appendix 8.7 – Screen 7



Appendix 8.8 – Screen 8

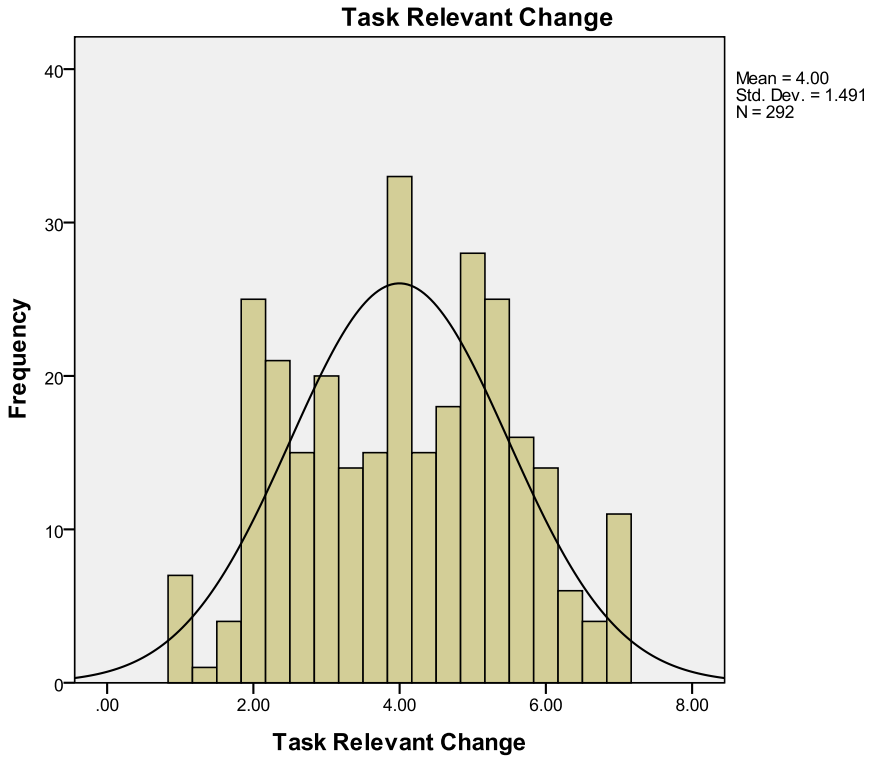


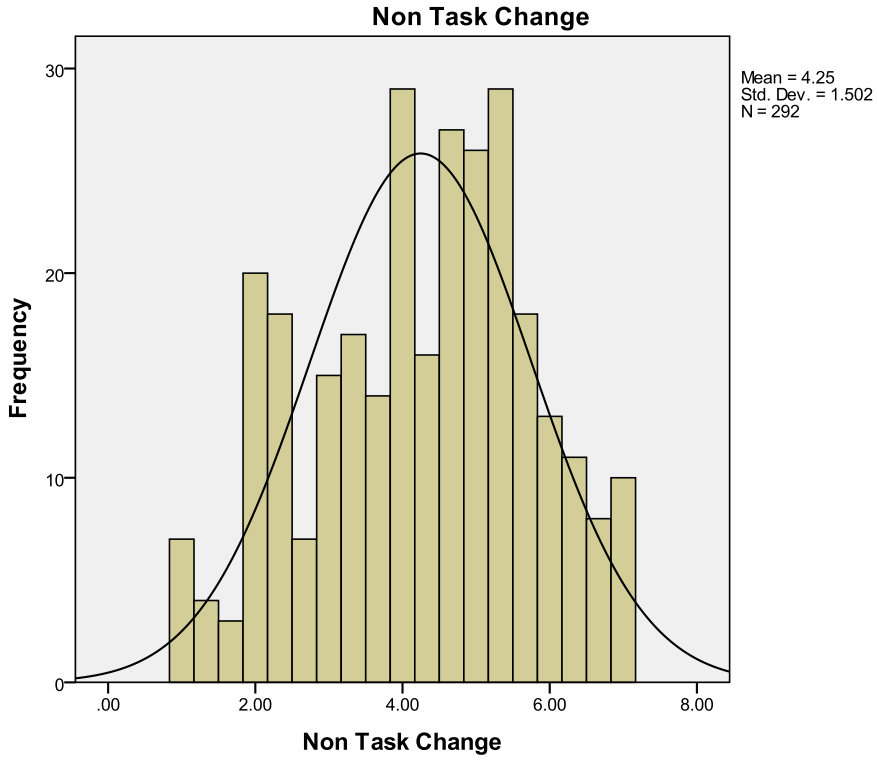
Appendix 8.9 – Screen 9

APPENDIX 9. Histograms (with normal curves) for Scales

Description of Appendix -

Histograms for all scales including normal curves.


Task Relevant Change
Mean = 4.00
Std. Dev. = 1.491
N = 292
Frequency
0
10
20
30
40
.00
2.00
4.00
6.00
8.00
Task Relevant Change


Non Task Change
Mean = 4.25
Std. Dev. = 1.502
N = 292
Frequency
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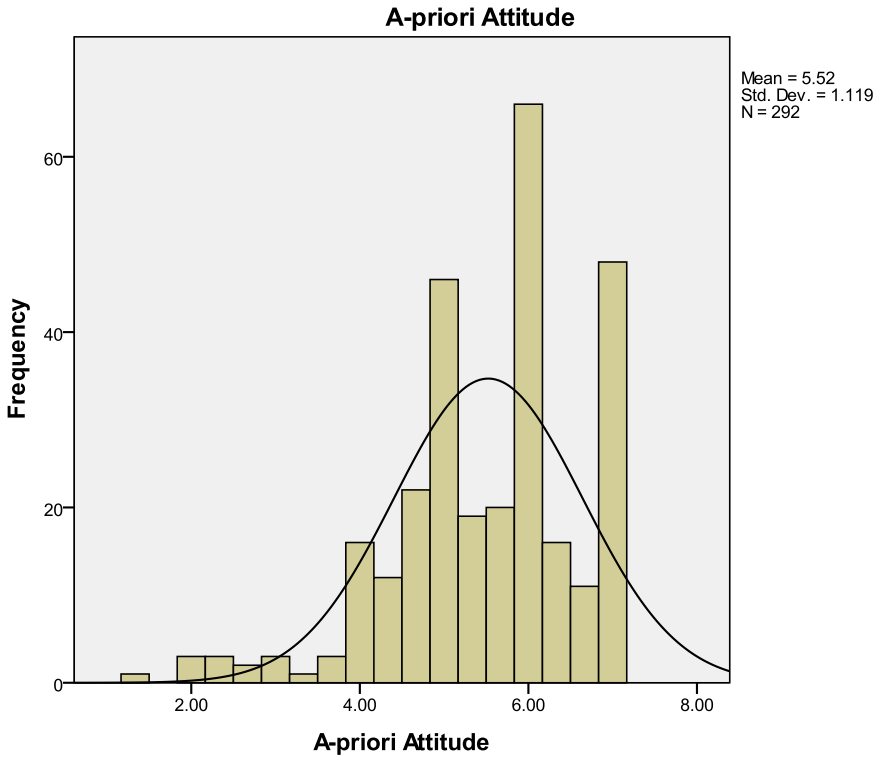
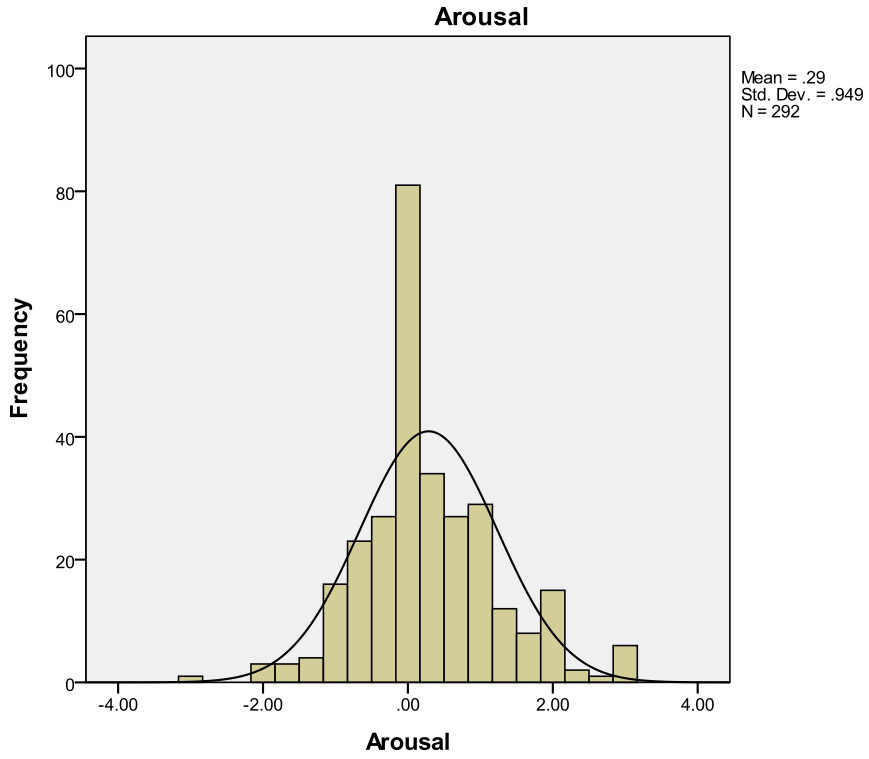
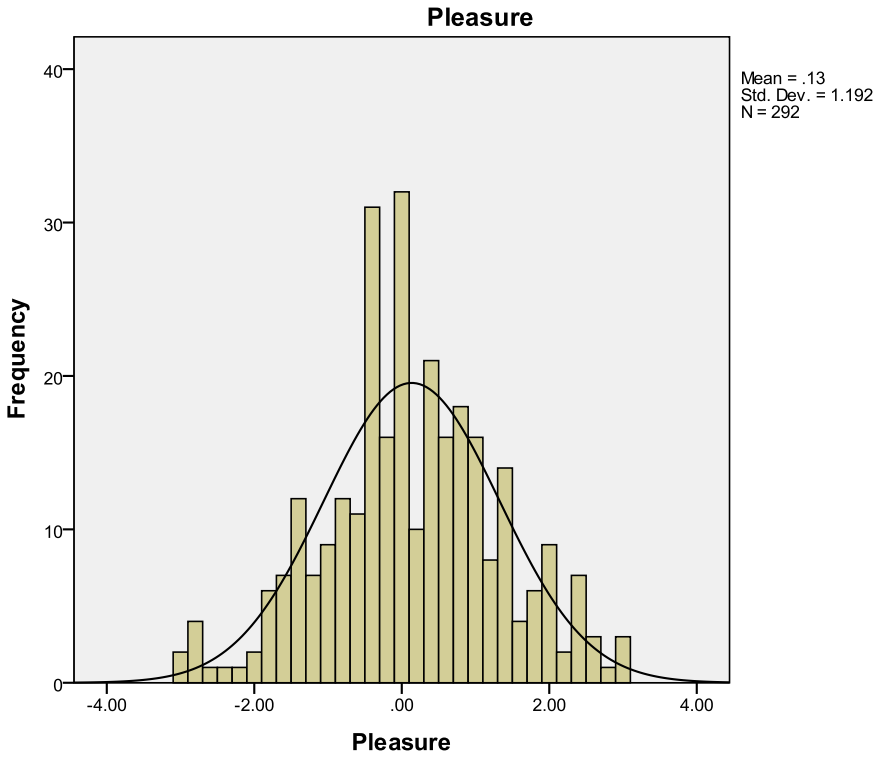
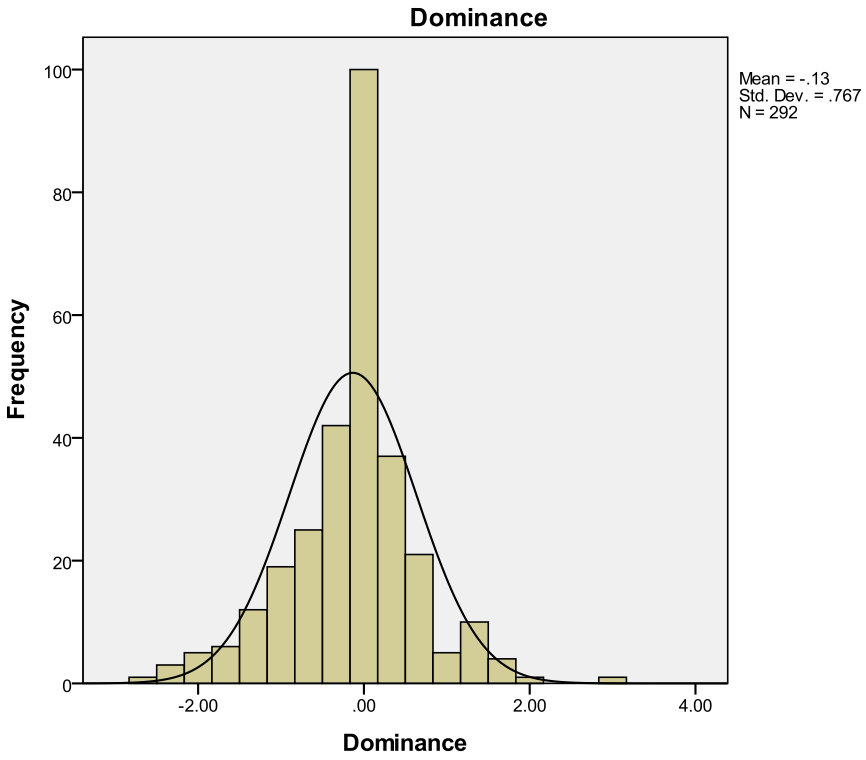
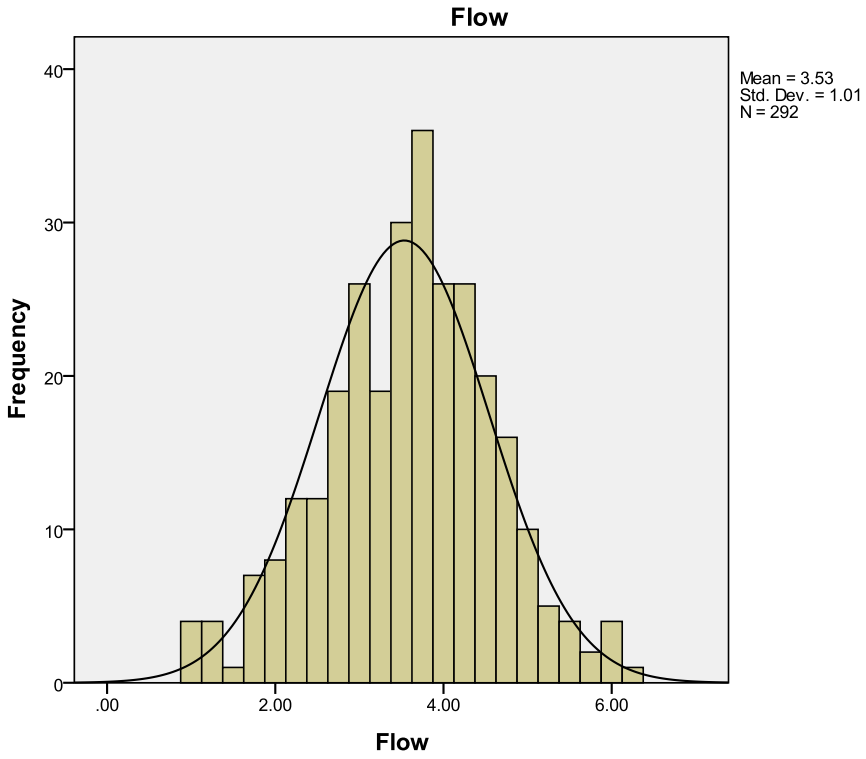
10
20
30
.00
2.00
4.00
6.00
8.00
Non Task Change


A-priori Attitude
Mean = 5.52
Std. Dev. = 1.119
N = 292
Frequency
60
40
20
0
2.00
4.00
6.00
8.00
A-priori Attitude


Arousal
Mean = .29
Std. Dev. = .949
N = 292
Frequency
100
80
60
40
20
0
-4.00
-2.00
.00
2.00
4.00
Arousal


Pleasure
Mean = .13
Std. Dev. = 1.192
N = 292
Frequency
40
30
20
10
0
-4.00
-2.00
.00
2.00
4.00
Pleasure


Dominance
Mean = -.13
Std. Dev. = .767
N = 292
Frequency
100
80
60
40
20
0
-2.00
.00
2.00
4.00
Dominance


Flow
Mean = 3.53
Std. Dev. = 1.01
N = 292
Frequency
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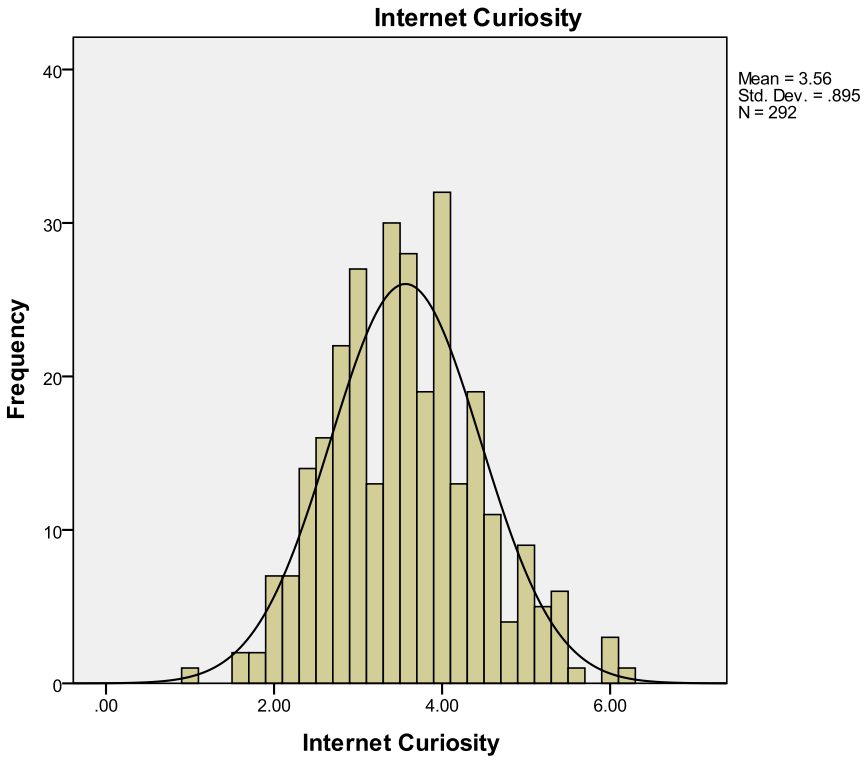
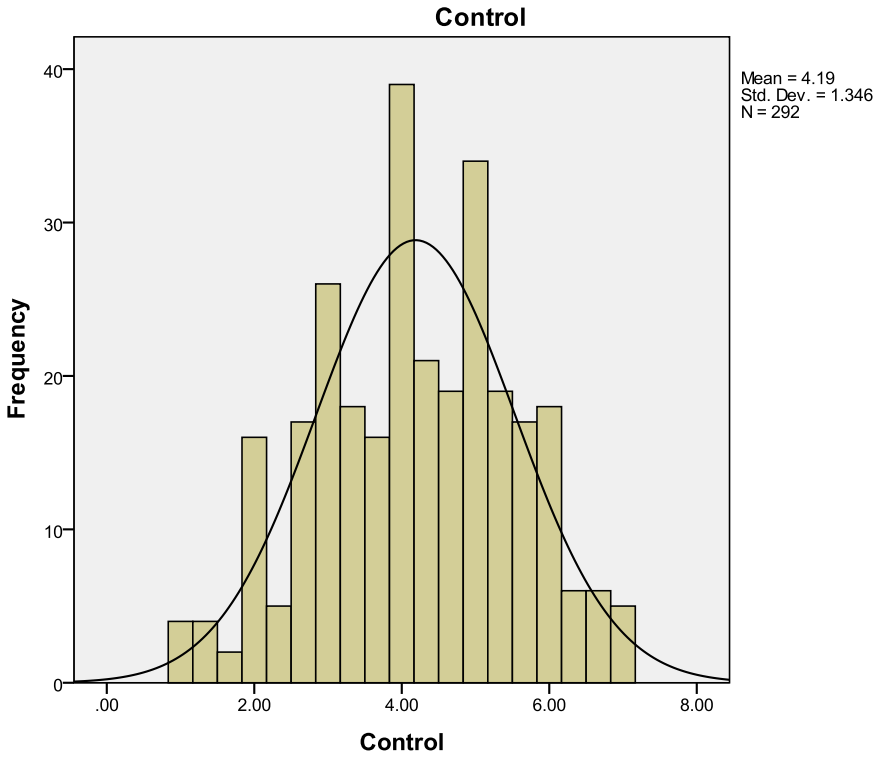
30
20
10
0
.00
2.00
4.00
6.00
Flow


Internet Curiosity
Mean = 3.56
Std. Dev. = .895
N = 292
Frequency
40
30
20
10
0
.00
2.00
4.00
6.00
Internet Curiosity


Control
Mean = 4.19
Std. Dev. = 1.346
N = 292
Frequency
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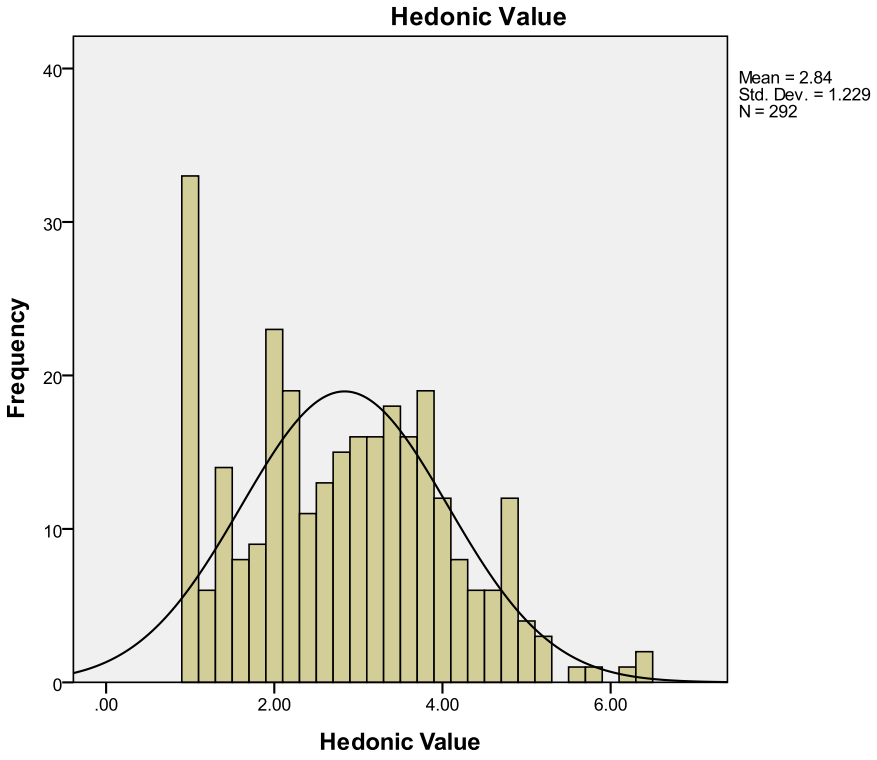
30
20
10
0
.00
2.00
4.00
6.00
8.00
Control


Hedonic Value
Mean = 2.84
Std. Dev. = 1.229
N = 292
Frequency
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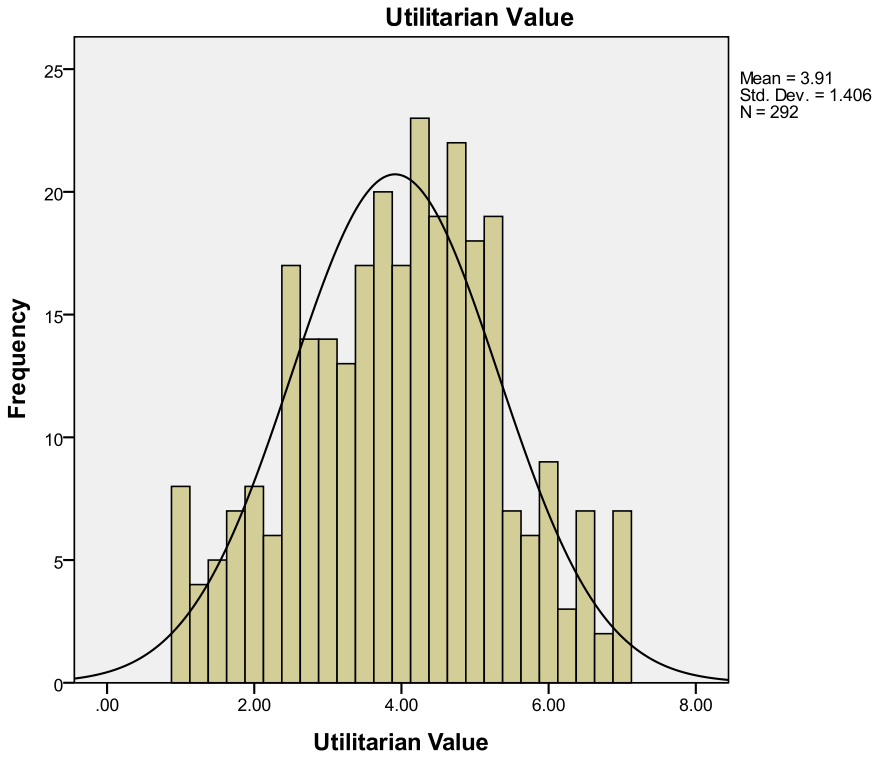
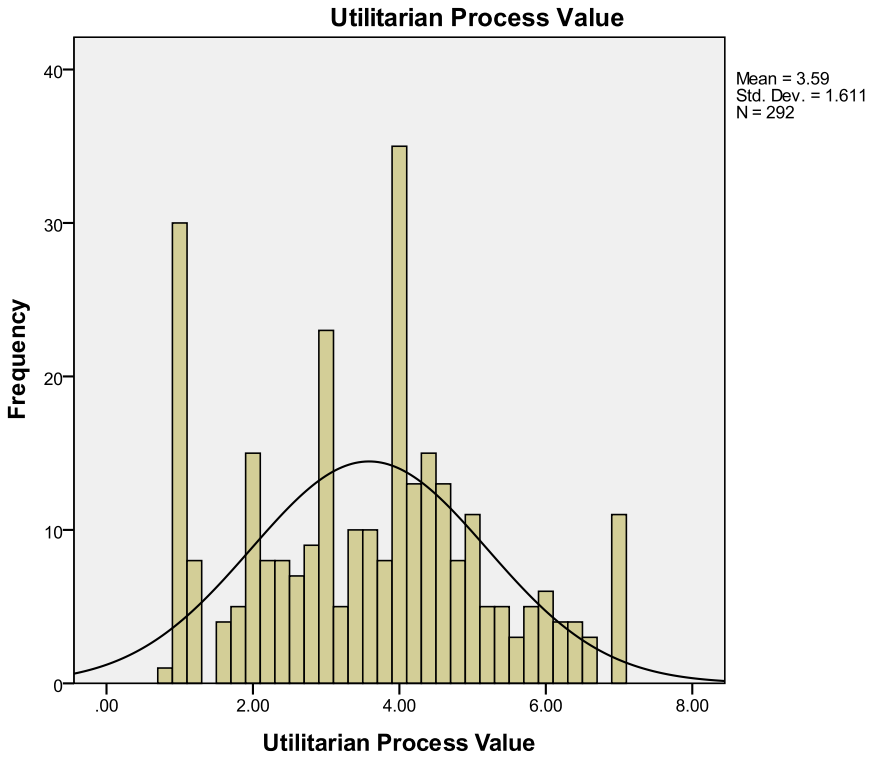
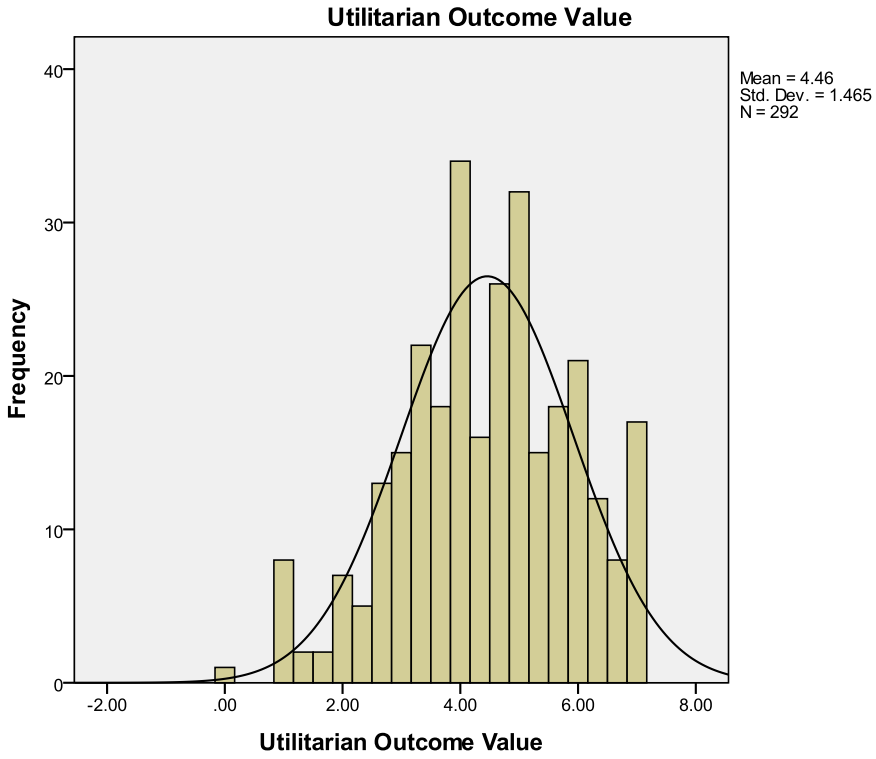
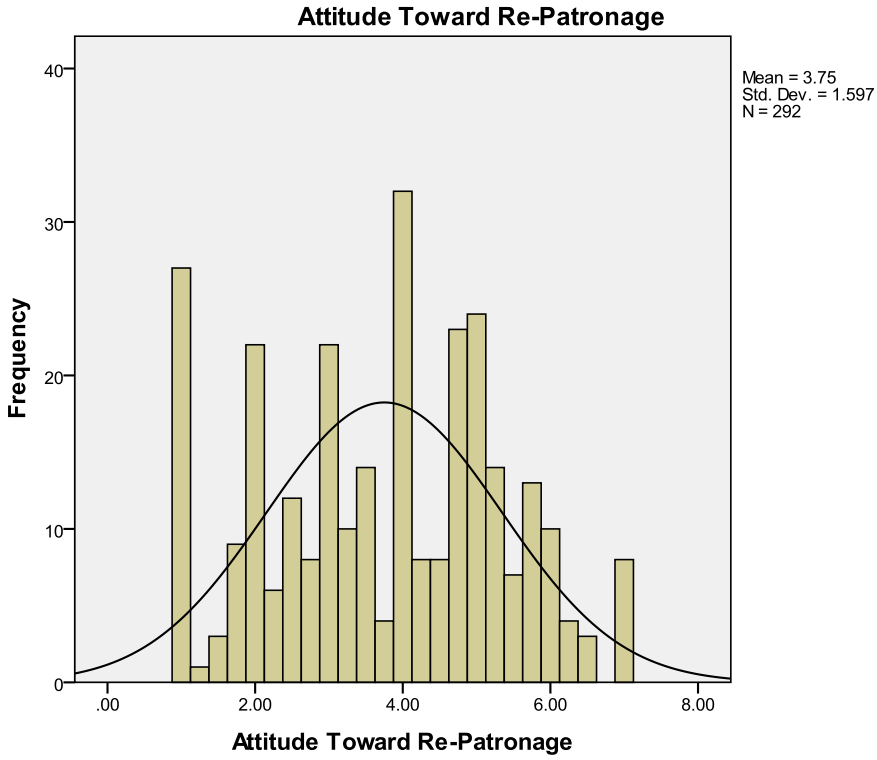
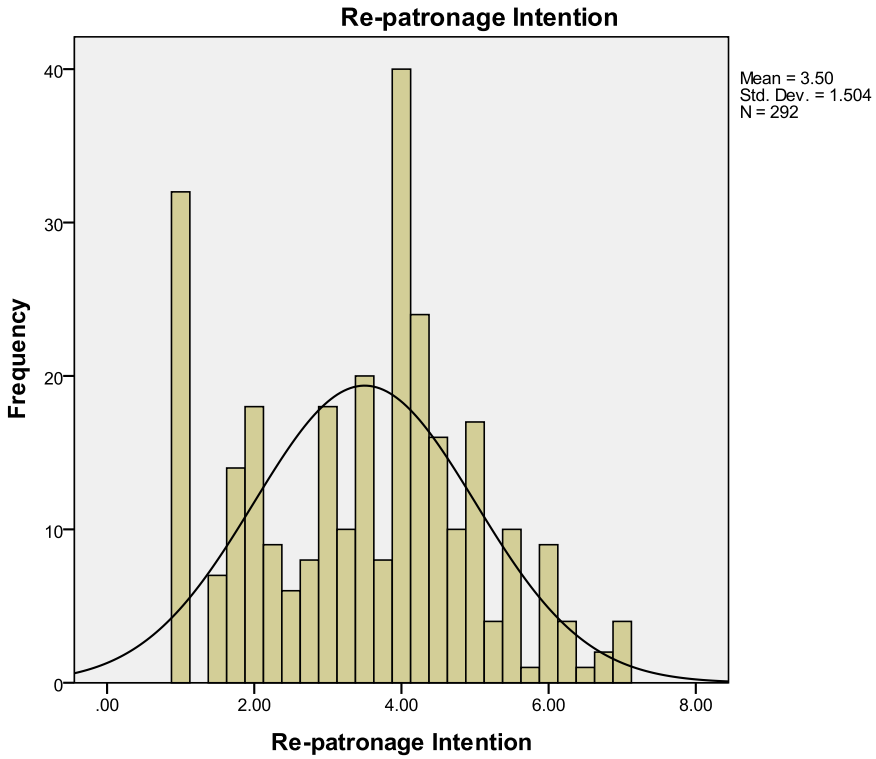
30
20
10
0
.00
2.00
4.00
6.00
Hedonic Value

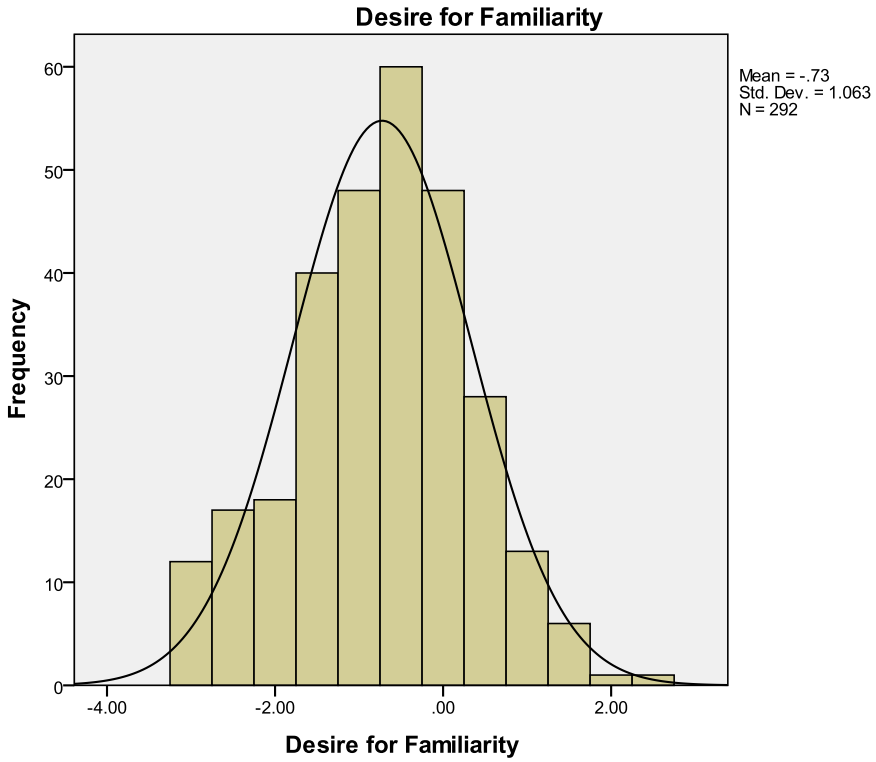

Utilitarian Value
Mean = 3.91
Std. Dev. = 1.406
N = 292
Frequency
25
20
15
10
5
0
.00
2.00
4.00
6.00
8.00
Utilitarian Value

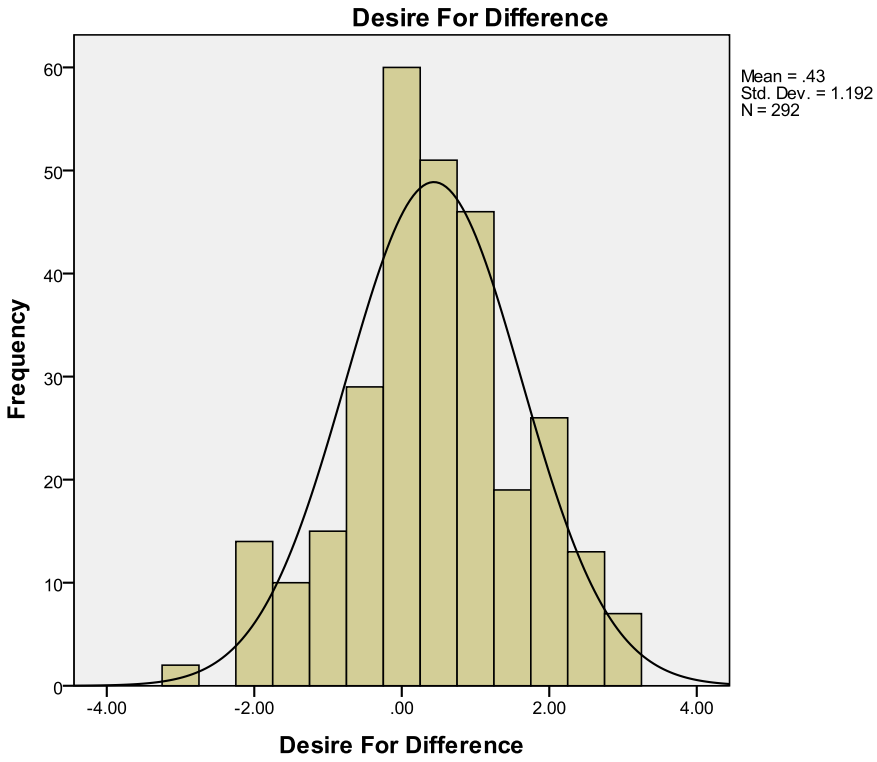

Utilitarian Process Value
Mean = 3.59
Std. Dev. = 1.611
N = 292
Frequency
40
30
20
10
0
.00
2.00
4.00
6.00
8.00
Utilitarian Process Value

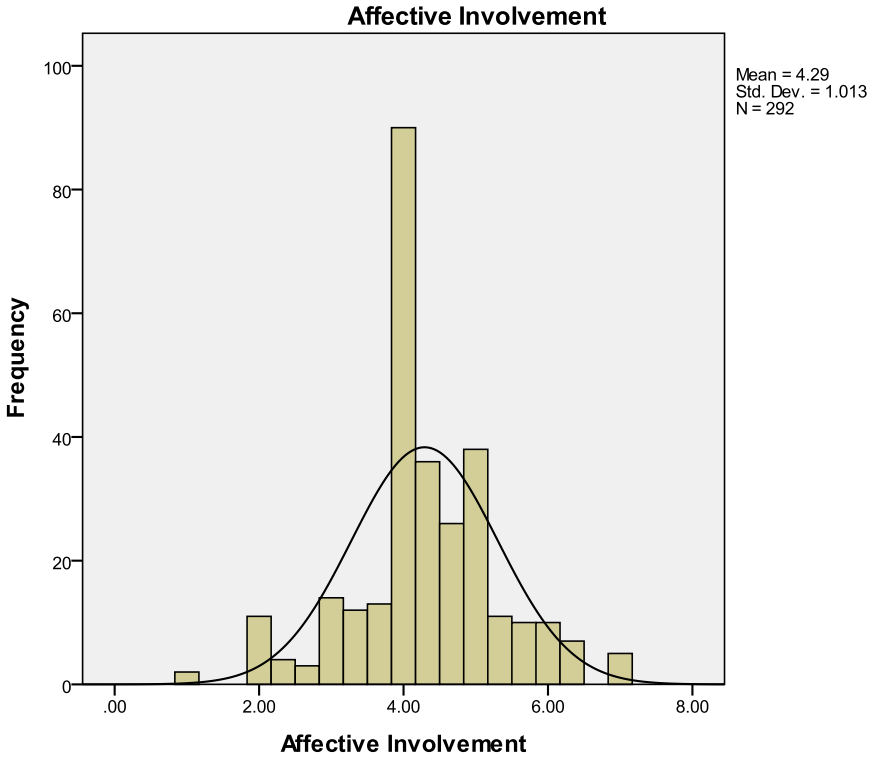

Utilitarian Outcome Value
Mean = 4.46
Std. Dev. = 1.465
N = 292
Frequency
0
10
20
30
40
-2.00
.00
2.00
4.00
6.00
8.00
Utilitarian Outcome Value

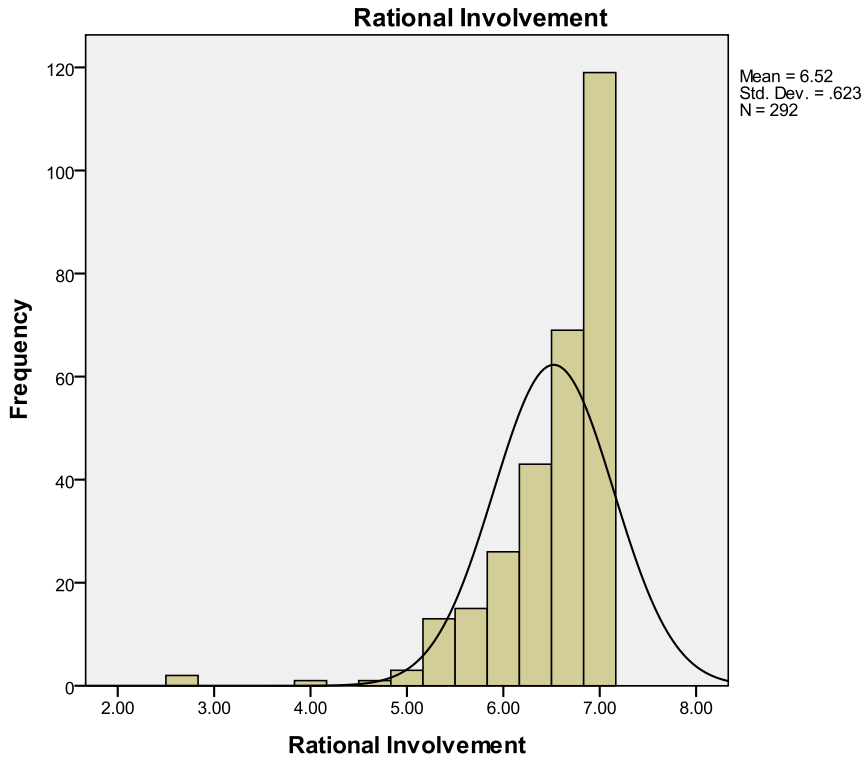

Attitude Toward Re-Patronage
Mean = 3.75
Std. Dev. = 1.597
N = 292
Frequency
0
10
20
30
40
.00
2.00
4.00
6.00
8.00
Attitude Toward Re-Patronage

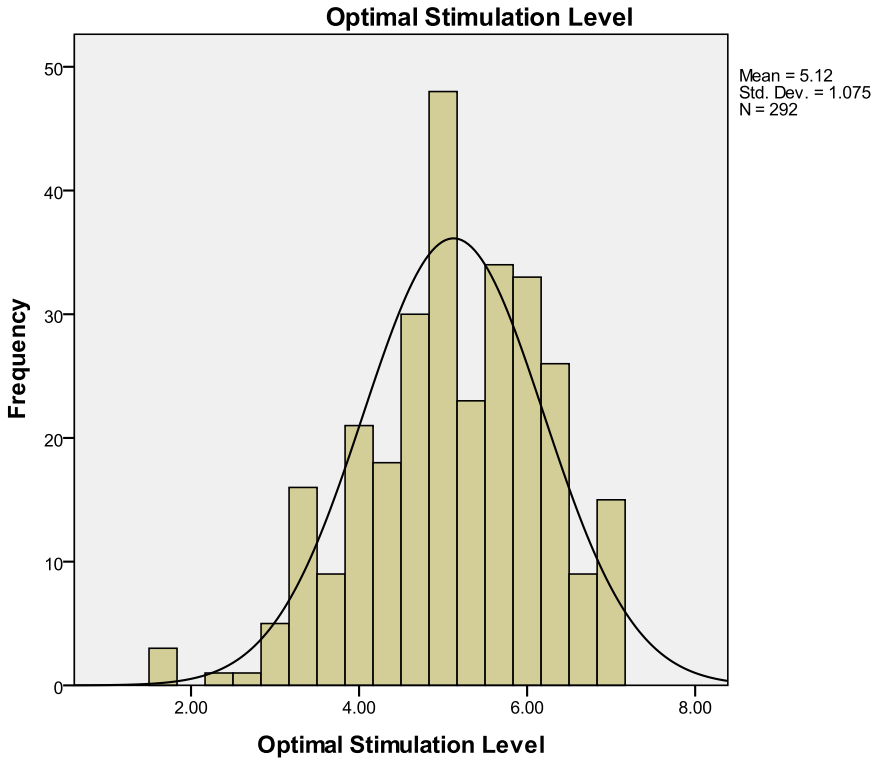

Re-patronage Intention
Mean = 3.50
Std. Dev. = 1.504
N = 292
Frequency
0
10
20
30
40
.00
2.00
4.00
6.00
8.00
Re-patronage Intention

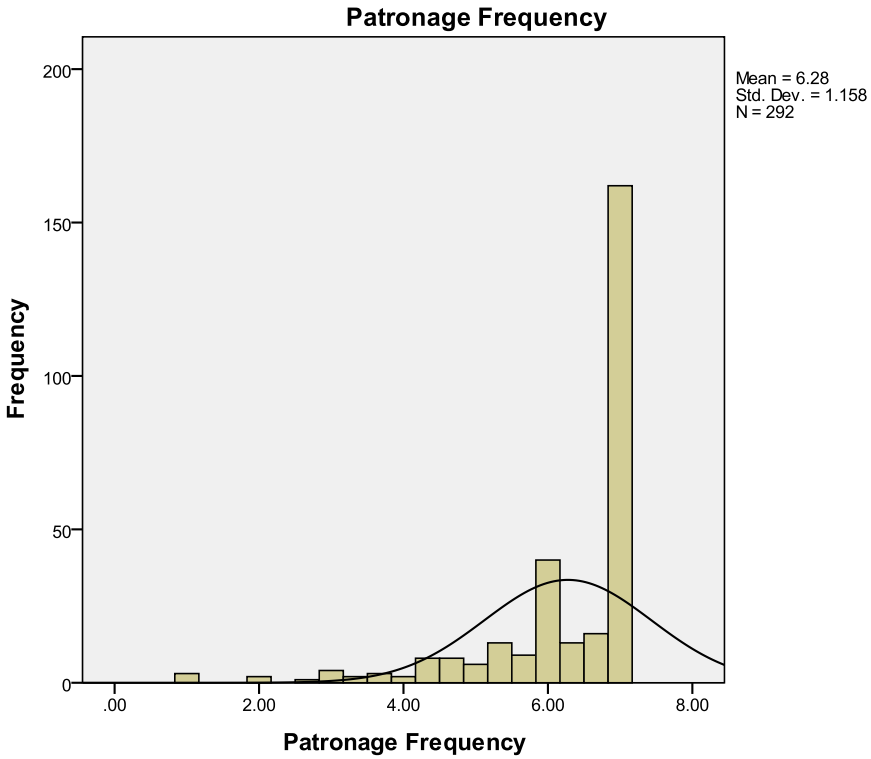

Desire for Familiarity
Mean = -.73
Std. Dev. = 1.063
N = 292
Frequency
0
10
20
30
40
50
60
-4.00
-2.00
.00
2.00
Desire for Familiarity

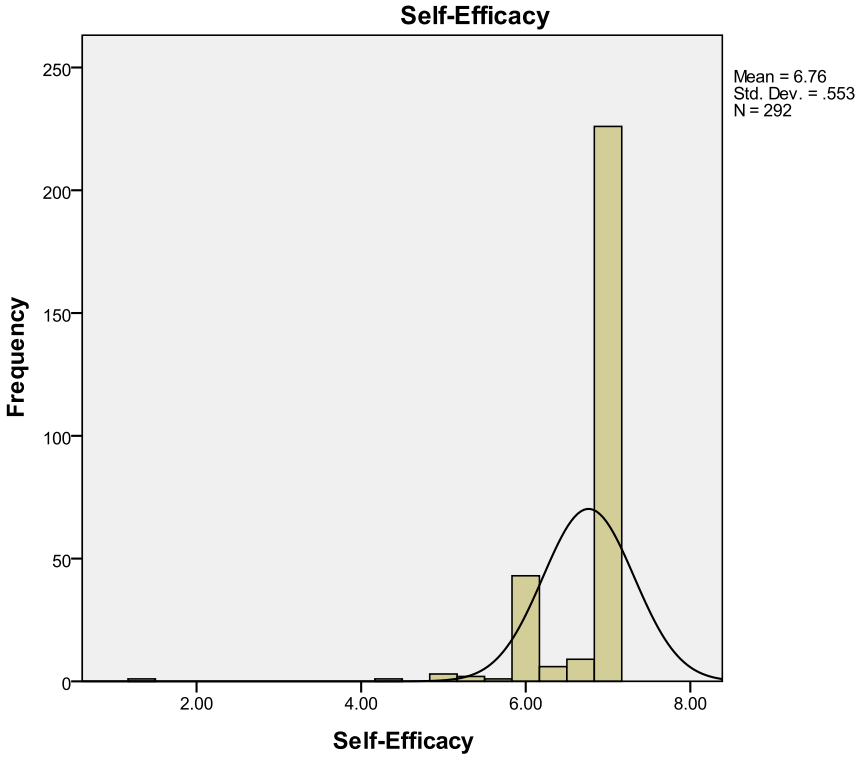

Desire For Difference
Mean = .43
Std. Dev. = 1.192
N = 292
Frequency
60
50
40
30
20
10
0
-4.00
-2.00
.00
2.00
4.00
Desire For Difference


Affective Involvement
Mean = 4.29
Std. Dev. = 1.013
N = 292
Frequency
100
80
60
40
20
0
.00
2.00
4.00
6.00
8.00
Affective Involvement


Rational Involvement
Mean = 6.52
Std. Dev. = .623
N = 292
Frequency
120
100
80
60
40
20
0
2.00
3.00
4.00
5.00
6.00
7.00
8.00
Rational Involvement


Optimal Stimulation Level
Mean = 5.12
Std. Dev. = 1.075
N = 292
Frequency
50
40
30
20
10
0
2.00
4.00
6.00
8.00
Optimal Stimulation Level


Patronage Frequency
Mean = 6.28
Std. Dev. = 1.158
N = 292
Frequency
200
150
100
50
0
.00
2.00
4.00
6.00
8.00
Patronage Frequency


Self-Efficacy
Mean = 6.76
Std. Dev. = .553
N = 292
Frequency
250
200
150
100
50
0
2.00
4.00
6.00
8.00
Self-Efficacy